

WAYNE STATE UNIVERSITY

School of Business Administration

College of Education

College of Engineering

Graduate Division

Law School

College of Liberal Arts

College of Lifelong Learning

School of Medicine

Monteith College

College of Nursing

College of Pharmacy and Allied Health Professions

School of Social Work

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contained in the following section are general rules and conditions 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.

General Information

Academic Calendar¹

Summer Quarter 1974

Quarter begins Wednesday, June 19
Final registration Thursday, Friday, June 20, 21
Last day for filing degree applications Friday, June 21
Classes begin Monday, June 24
Commencement Tuesday, June 25
Independence Day recess Thursday, July 4
Early registration for Fall Quarter Monday, July 22-
Friday, August 9
First Half-quarter ends Wednesday, July 31
Second Half-quarter begins Thursday, August 1
Labor Day recess Monday, September 2
Eleventh week schedule begins Tuesday, September 3
Classes end Saturday, September 7
Quarter ends Sunday, September 8

Fall Quarter 1974

Quarter begins Monday, September 9
Final registration Thursday, Friday, Monday,
September 12, 13, 16
Last day for filing degree applications . Monday, September 16
Classes begin Thursday, September 19
Early registration for Winter Quarter . . Monday, October 28-
Friday, November 15
Thanksgiving recess Thursday, Friday, Saturday,
November 28, 29, 30
Eleventh week schedule begins Monday, December 2
Classes end Saturday, December 7
Commencement Tuesday, December 10
Holiday recess Monday, Tuesday, Wednesday,
December 23, 24, 25
Quarter ends Tuesday, December 31

Winter Quarter 1975

Quarter begins Wednesday, January 1, 1975
New Year's recess Wednesday, January 1
Final registration . . Friday, Monday, Tuesday, January 3, 6, 7
Last day for filing degree applications . . . Tuesday, January 7
Classes begin Thursday, January 9
Early registration for Spring Quarter . . Monday, February 17-
Friday, March 7
Eleventh week schedule begins Thursday, March 20
Classes end Wednesday, March 26
Quarter ends Sunday, March 30

Spring Quarter 1975

Quarter begins Monday, March 31
Final registration Monday, Tuesday, Wednesday,
March 31, April 1, 2
Last day for filing degree applications . . Wednesday, April 2
Classes begin Monday, April 7
Early registration for Summer Quarter . . . Monday, May 12-
Friday, May 30
Memorial Day recess Monday, May 26
Eleventh week schedule begins Monday, June 16
Classes end Saturday, June 21
Commencement Tuesday, June 24
Quarter ends Tuesday, June 24

¹ The Law School (see page 166) and the School of Medicine (see page 396) maintain academic calendars different from this. See their respective sections for details.



UNDERGRADUATE ADMISSION

The Office of Admissions is located in 116 Administrative Services Building, 5950 Cass, Detroit, Michigan 48202. Telephone, 577-3560. Admissions counselors are available for personal conferences to aid the prospective student.

APPLICATION

1. An official *Application for Undergraduate Admission* with a \$10.00 application fee **must** be filed in the Office of Admissions before any consideration regarding admissibility can begin. The application blank may be secured from the Office of Admissions. High school students in Michigan can secure an application from their high school counselor.

2. The filing deadline for each quarter is shown on the instruction sheet which is part of the application material. The completed application, including transcripts and any other records necessary for admissions consideration, must be in the Office of Admissions on or before that date.

WHEN TO APPLY FOR ADMISSION

1. Students still in high school may apply after completion of their junior year provided admission is requested for the quarter immediately following graduation or thereafter.

2. Out-of-state applicants (including transfer students not currently attending another college) who do not plan to enroll in another college or university before entering Wayne may apply up to eleven months in advance.

3. Applicants presently registered at another college or university should apply early in the last term prior to transfer.

ADMISSION REQUIREMENTS

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

2. Transfer students who have completed at least a year of college work (thirty semester credits or forty-five quarter credits) at an accredited institution with a C average will be considered for admission on the basis of that work. For those students who have completed less than an academic year of credit at another institution, the high school record will be used as an additional factor in determining admissibility.

3. An applicant dismissed from another college or university is ineligible for admission consideration for at least one year.

4. 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 admission counselor if they wish to be considered for admission to a degree program.

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

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

TRANSFER ADMISSION REQUIREMENTS

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

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

b. Completion of at least a year of college credits at a recognized but unaccredited collegiate institution with a cumulative B average.

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

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

3. An applicant dismissed from another college or university is ineligible for admission consideration for at least one year. Such students and those who have a history of poor academic performance can increase the likelihood of an opportunity for study at Wayne by first completing a year of course work with good grades at a junior or community college or other accredited collegiate institution.

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

a nonaccredited college should consult with an admissions counselor regarding possible methods of qualifying for admission.

Monteith College: Applicants to Monteith College's program for Advanced Transfer Students should have a B average in a minimum of sixty semester credits or ninety quarter credits earned from an accredited institution and must achieve satisfactory scores on a special qualifying examination required for acceptance.

College of Pharmacy and Allied Health Professions—Faculty of Pharmacy: Transfer students who have attended another college of pharmacy must be eligible for continuing registration in, or readmission to, that college.

Students transferring from another college within the University should initiate the change of college on forms obtained from the Faculty of Pharmacy Office. Deadline dates for application are shown on page 474.

RECOMMENDED HIGH SCHOOL PREPARATION

See individual schools and colleges for specific high school recommendations.

ADVANCED PLACEMENT TESTS

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

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

COLLEGE-LEVEL EXAMINATION PROGRAM

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

required of most general education students in the first two years of college.

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

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

TRANSFER OF CREDITS—UNDERGRADUATE

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

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

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

POST-DEGREE ADMISSION

Holders of bachelor's degrees who wish to elect only courses open to undergraduate students (numbered below 0700) are advised to apply for post-degree status. Courses elected while in post-degree status will not count toward graduate credit but may be used to fulfill prerequisite requirements for graduate admission.

INTERNATIONAL STUDENTS

A student from another country desiring admission should file an *Application for Admission to Undergraduate Studies for Applicants from Other Countries* or an *Application for Admission to Graduate Studies for Applicants from Other Countries* with the Office of Admissions. Full instructions for admission procedure, academic requirements, and language standards are included with the application forms. A student from a non-English speaking country must take an English Language Proficiency Examination prior to admission. Arrangements are to be made through the Office of Admissions. For further information on international student admission to the Graduate Division, see p. 17.

shall apply to minor aliens only if they are emancipated. All other minor aliens who have permanent visas fall within paragraph 1 above.

Discretion to adjust individual cases within the spirit of these regulations is vested in the Registrar. If there are any questions about a student's legal Michigan residence under the rules stated above, it shall be the responsibility of the student to have such questions settled by the Registrar prior to registration. If the student is dissatisfied with the ruling of the Registrar, he has the right to appeal to the Office of the General Counsel, and thence to the President.

A student who is admitted as a non-resident must apply at the Registration Office for a change of classification when he has fulfilled the requirements for residence. This application must be made before the end of the quarter for which he hopes to be reclassified.

The University reserves the right to correct errors in the student's classification at any time.

Installment Payments — Payment may be made in installments as follows: an initial payment at the time of registration of not less than the resident rate for four credits; balance in one or two installments payable one and two months after the start of classes, respectively.

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

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

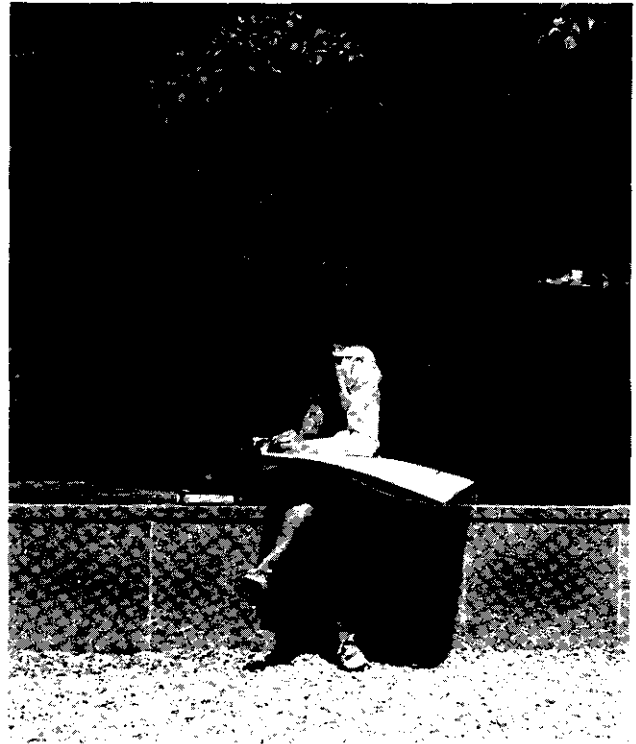
Special Examination Fee — The fee for the examination taken to establish credit by examination is \$5.00 per credit. Examinations will be approved under provisions established by each school or college. Credit allowed on the basis of transcript entries from another institution and for which a special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

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

For students registering for certain courses in physical education, there is an additional fee of \$3.00 for towels and locks, or a \$7.00 fee for uniforms, towels, and locks. This fee is not refundable. For some activities there is an additional charge for equipment rental.

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

Application for Admission Fee — Each application for admission to the University must be accompanied by a non-refundable application fee of \$10.00 for undergraduate admission, or \$15.00 for admission to graduate study.



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

TRANSCRIPT POLICY

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

CANCELLATION OF FEE CHARGES

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

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

Fees¹

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

Undergraduate Fees

Credit Hours	per quarter	
	Resident	Nonresident ²
1—4	\$ 94.50	\$219.00
5	112.00	270.50
6	129.50	322.00
7	147.00	373.50
8	164.50	425.00
9	182.00	476.50
10	199.50	528.00
11	217.00	579.50
12—16	234.50	631.00
Each credit over 16	16.50	50.50

Graduate Fees

Credit Hours	per quarter	
	Resident	Nonresident ²
1—4	\$117.00	\$262.00
5	137.00	323.75
6	157.00	385.50
7	177.00	447.25
8	197.00	509.00
9	217.00	570.75
10	237.00	632.50
11	257.00	694.25
12—16	277.00	756.00
Each credit over 16	19.00	60.75

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

¹ Significant exceptions in fee policy or in fees are made by the Law School (see page 171), the School of Medicine (see page 398), the School of Social Work (see page 517), the College of Lifelong Learning (see page 391) and the Department of Mortuary Science (see page 530). See their respective sections for details.

² See explanation of residency below.

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

RESIDENCY

A student's residency is determined in accordance with the following policy:

The University is an agency of the State of Michigan established primarily for the education of Michigan residents. Since most of the expenses of the University are provided by the state, nonresident fees, greater than resident fees, are required by legislation and are assessed students who are not Michigan residents. No student is eligible for resident classification in the University, or any college thereof, unless he has been a *bona fide* domiciliary of the state for at least six months immediately prior thereto. This requirement does not prejudice the right of a student admitted on a nonresident basis to be placed thereafter on a resident basis provided he has acquired a *bona fide* domicile of a six month's duration within the state. Attendance at the University neither constitutes nor necessarily precludes the acquisition of such a domicile. For University purposes, a student does not acquire a domicile in Michigan until he has been here for at least six months primarily as a permanent resident and not merely as a student; this involves the probability of his remaining in Michigan beyond his completion of school.

Residence in Michigan for the purpose of registration at Wayne State University shall be determined in accordance with the following definitions and regulations:

1. The residence of a minor who is a legal resident of the United States follows that of his parents or legal guardian except when that minor student is emancipated. Emancipation is dependent upon the financial and personal independence of the student from his parents and other individuals. A minor student whose parents do not reside in Michigan cannot be registered as a resident on the basis of having a resident of Michigan as a guardian, except on petition in each individual case, and favorable findings by the Office of the General Counsel. A minor registered as a resident may continue to register as a resident, although his parents have moved outside Michigan, as long as he attends the University three quarters per year.

2. A person eighteen years of age or older with residence in the United States shall be deemed a resident of Michigan for the purpose of registration in the University if he claims Michigan residence and has resided in Michigan for six months preceding the date of his enrollment, provided that any registrations he may have in any educational institution during that period do not exceed eight quarter credits per quarter (or eight semester credits per semester); or in the Law School more than twelve credit hours in any one full-length term.

3. An alien eighteen years of age or older who has been lawfully admitted for permanent residence in the United States and who has obtained a permanent visa may register as a Michigan resident provided he or she comes directly to Michigan from his or her country of origin. This provision

<i>For Classes Meeting 26 or More Weeks</i>	<i>Amount of Refund</i>
Withdrawal through the end of the sixth week of classes	100% less \$20.00*
Withdrawal during the seventh through twelfth week of classes	60%
Thereafter	No Refund

For Classes Meeting 15-25 Weeks

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

For Classes Meeting 8-14 Weeks

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

For Classes Meeting 4-7 Weeks

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

For Classes Meeting Less Than 4 Weeks

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

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

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

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

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

*Twenty dollars is withheld only when the student withdraws from all classes.

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

Registration

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

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

UNIVERSITY REQUIREMENT IN AMERICAN GOVERNMENT

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

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

AUDITING COURSES

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

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

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

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

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

DUAL ELECTIONS

With the Graduate Division — Highly qualified undergraduate students may under special circumstances, take an 0700 or 7000 level course. 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 Division before the first meeting of the course.

Under the Senior Rule — A student in his senior year who has a good academic record and who desires to earn a limited number of graduate credits may receive, in his final quarter, a temporary admission for one quarter only to the Graduate Division. For further information, see the Graduate Division Section of this bulletin, p. 17.

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

REPEATING COURSES

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

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

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

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

For information on repetition of courses at the graduate level, see "Honor Point Average," page 14.

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

WITHDRAWALS AND CHANGES OF PROGRAM

Withdrawals — Through the third day of the ninth week of classes, any student may withdraw from any class and receive a mark of W by notifying the Registration Office in writing. He may either make out and sign a Change of Elections form and leave it in the Registration Office or write a letter specifying the class or classes he wishes to drop. The notice must be received in the Registration Office by the third day of the ninth week of classes. IT IS STRONGLY RECOMMENDED THE STUDENT CONSULT WITH HIS INSTRUCTOR ABOUT HIS OPTIONS BEFORE DROPPING A CLASS AFTER THE END OF THE SECOND WEEK OF CLASSES. After the third day of the ninth week of classes a student may secure a withdrawal mark (W) for a course provided he has a good educational reason for withdrawing and obtains the prior written approval of the course instructor or the Dean of the unit in which he is currently enrolled.

If a student files a formal withdrawal from a course not later than Friday of the fifth week of classes, that course will not appear on his record. The record of a student who has withdrawn from all of his courses by that date will bear the notation "Complete Withdrawal" for the quarter. If notice of withdrawal reaches the Registration Office after Friday of the fifth week of classes, the course or courses will appear on the record with a mark of W.

For additional information see Withdrawal Marks, p. 14, and the section on "Fees" elsewhere in this bulletin.

Students who enter the armed services during a quarter before classes end may withdraw without penalty and receive a full refund if they present evidence of their induction or enlistment, or they may receive credit at the discretion of the instructors of their courses. Credit may be granted for some courses and refunds for others. At the time of withdrawal, the student must present to the Registration Office a copy of his military orders ordering him to active duty.

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

Changes of program — In order to add a class or to change from one class to another the student must secure a Change of Elections form from the appropriate office at his or her college, have it dated and signed as instructed, and present it at the Registration Office. Such changes cannot be accepted in the Registration Office until the first day of classes.

CREDIT BY SPECIAL EXAMINATION

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

Credit by a special examination is restricted as follows:

1. Not more than twenty-four credits may be earned in any one subject.
2. Not more than forty-eight credits may be included in the minimum credits required for graduation.
3. Credit will be recorded with grade to indicate the level of performance in the examination but will not be considered in computing honor point average.
4. Credit will not be considered residence credit.

For Special Examination fee, see p. 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 students at the close of each quarter.

Final grades are recorded under the following system.

Undergraduate Grades

- A Excellent..... 4 honor points per credit hour
B Good..... 3 honor points per credit hour
C Fair..... 2 honor points per credit hour
D Poor but passing..... 1 honor point per credit hour
E Failure..... 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. 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.

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, the graduate student is expected to do work of superior quality and is required to do any additional work specified by the instructor. Graduate students are required to earn a B (3.0) average to satisfy degree requirements.

Final grades are recorded under the following system.

- A Excellent..... 4 honor points per credit hour
B Good..... 3 honor points per credit hour
C Fair..... 2 honor points per credit hour
D (F) Failure..... 1 honor point per credit hour
E (F) Failure..... 1 honor point per credit hour

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

Law School: This grading system does not apply to Law School students.

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.
X Unofficial
Withdrawal.. See below for explanation of this mark.
Z Auditor.... See below for explanation of this mark.
R Repeated.... See page 12 for explanation of this mark.

The mark of I—Incomplete, is given to either an undergraduate or a graduate student when he or she has not completed all the course work as planned for the quarter and when there is, in the judgment of the instructor a *reasonable* probability that the student can complete the course successfully without *again attending regular class sessions*. The responsibility for completing all course work rests wholly with the student. The mark of I will be changed to a grade *only* when the student completes the course work as arranged with the instructor or, if the instructor has left the University, with the chairman of the department or other instructional unit.*

The mark of I is inappropriate if, in the instructor's judgment, it will be necessary for the student regularly to attend subsequent sessions of the class. Should regular attendance become

*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.

necessary, the student must register for the class for the quarter in which attendance is planned. In the event of a second registration for the course, the mark of I for the original election will be changed to W, and the student will be assessed tuition and applicable fees for the second registration.

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

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

The mark of W — Official Withdrawal, is given when the withdrawal is reported to the Registration Office in writing in accordance with the policy stated on page 12.

The mark of X — Unofficial Withdrawal, is given when a student ceases attending class without officially withdrawing by giving written notice to the Registration Office, except when the instructor indicates that the grade or mark is E or I (see definition of I). The student who attends two weeks or less and does not withdraw officially shall be marked X as a matter of University policy. The mark of X is not reflected in the student's honor point average.

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

PASSED - NOT PASSED PROGRAM

The University has approved a program whereby undergraduate students may elect to take courses in which they will be marked as *Passed* (P) or *Not Passed* (N) in place of a letter grade. Except as noted below, the following regulations apply: the student may elect one P-N course per quarter with the consent of an adviser, but he may not elect more than six courses in all. After classes have begun, a student may not change from this program to a letter grade election or vice versa. Although any course may be designated for the P-N program, no course taken on this basis may be used to fulfill specific group or major requirements. Credits for a P-N course may be used for graduation but will not count in the honor point average. In the event the student enrolls in more than six P-N courses, those beyond the permissible maximum will be designated on the permanent record as not counting toward graduation.

Monteith College: Tutorials, seminars, and elective courses—but not Monteith basic courses — may be elected as P-N courses. In addition, available courses may be elected from other colleges and schools in Wayne State University for the grade P or N. Note, however, that courses included as part

of a Monteith concentration, taken to qualify for admission to a professional school, or taken for teacher certification should not be elected on a P-N basis. Not more than twelve P-N courses may be counted toward graduation requirements.

College of Nursing: With the consent of the adviser and with specific exceptions, a College of Nursing student may elect a maximum of six courses in the liberal arts for P-N grades. Courses in the nursing major during the junior and senior years may be elected for either letter grades or P-N grades.

At the present time those whose undergraduate major includes Passed-Not Passed grades or whose courses outside the major include more than eighteen quarter credit hours of P-N grades will be at a disadvantage in seeking admission to the Graduate Division of Wayne State University for study in the graduate program in nursing.

CREDITS

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

HONOR POINT AVERAGE

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

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

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

The base excludes credit by special examination, transfer credit, basic training credit for veterans, courses dropped with a mark of W or X 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 12 on "Repeating Courses."

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

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

CLASS RANKING

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

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

College of Education

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

College of Pharmacy and Allied Health Professions — Faculty of Pharmacy

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

RELEASE OF STUDENT RECORDS

The University recognizes admissions and academic records of students as being privileged and has a policy designed to ensure that this information is not improperly divulged without the consent of the student. 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 students whose records are involved will be held in confidence.

APPLICATION FOR DEGREE OR CERTIFICATE

Each candidate for a degree or certificate must file an *Application for Degree* in the Records Office, 150 Administrative Services Building, not later than the last day of the registration period for the quarter in which he expects to complete the requirements for the degree or certificate; consult the academic calendar on page 6 of this bulletin. If an application for a degree was filed for a previous quarter in which the student did not graduate, a new application is necessary.

STUDENT RIGHTS AND RESPONSIBILITIES

Upon the recommendation of the Student-Faculty Council, the University (Faculty) Council, the President-Deans Con-

ference and the President, the Board of Governors in January, 1967, approved a comprehensive statement of Student Rights and Responsibilities for the University. Copies of this document are available to students and faculty in the offices of the dean of each college, the Dean of Students, and 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.

GRADUATE DIVISION

ADMISSION

REGULAR ADMISSION ¹

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

A completed *Application for Graduate Admission* form, the \$15.00 graduate application fee, and 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 responsible for arranging to take any entrance examinations that may be specified by the Office of Graduate Admissions, the college or school, or the individual department.

Several academic areas of the University require an additional departmental application. If such application is required, it will be so stated in the individual college, school, or department's section of this bulletin.

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

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

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

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

PROBATIONARY ADMISSION

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

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

College of Engineering: In general, degrees from non-accredited institutions must be supplemented by eight to twelve advanced undergraduate credits with grades of A or B, taken at Wayne State University, before admission to regular status.

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

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

DEADLINE DATES

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

College of Liberal Arts: The departments of Art and Art History, Psychology, and Sociology have earlier deadlines. Students applying to these departments should consult the department or the Office of Graduate Admissions for complete information.

GRADUATE NON-DEGREE ADMISSION*

A student who is entering the Graduate Division with objectives not related to the pursuit of a graduate degree — to

*For footnote see next page.

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

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

1. **PRE-MASTER'S.** A student with an acceptable grade point average and an earned bachelor's degree from an accredited institution may apply for this rank. Applicants must submit an *Application for Graduate Admission* and request that official transcripts from all previously attended colleges and schools be forwarded directly to the Office of Graduate Admissions.

2. **POST-MASTER'S.** This rank is reserved for those students who evidence an earned master's degree at the time of application. Students holding Wayne State master's degrees should contact the Graduate Officer of the college they wish to enter. Those with master's degrees from other institutions must submit an *Application for Graduate Admission* and transcripts.

3. **POST-DOCTORAL.** This rank is reserved for those students who evidence an earned doctoral degree at the time of application.

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

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

Graduate Guest Admission — Graduate students from other accredited institutions may be admitted to elect a limited number of credits at Wayne State University. Interested students are directed to contact the Office of Graduate Admissions.

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

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

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

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

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

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

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 Dean of Graduate Studies.

INTERNATIONAL STUDENTS

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

To be considered for graduate admission, applicants must have completed an appropriate university-level program com-

parable 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 \$4,700 per academic year (three quarters or nine months) for tuition, supplies, and living expenses; (3) have a sufficient proficiency in English as determined by *The Test of English as a Foreign Language* (TOEFL), to study in classes conducted entirely in the English language.

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

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

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

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

ADVANCED CREDIT EXAMINATION

A graduate student who wishes to obtain credit toward an advanced degree for knowledge in a field essential to his program of study, acquired by means which preclude formal transfer to Wayne State University, may petition for an advanced credit examination in a course or courses covering the relevant area of study. The petition requesting such advanced credit shall state the basis for the request in terms of the

student's competence at the graduate level in the particular academic area. The established examination fee must be paid before the examination is taken. *A minimum grade of B must be earned and all grades will be recorded on the student's transcript. Such grades will not be used in computing the honor point average.* The fulfillment of any requirement through advanced credit examination does not relieve the student of the residence requirement for the advanced degree.

GRADUATE COURSES

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

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

College of Engineering: A maximum of nine credits may be earned in Directed Study.

Law School: Permission for Directed Study is granted Ph.D. students by the School.

MAJOR CREDITS

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

MINOR CREDITS

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

MAXIMUM CREDIT LOAD

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

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

TRANSFER OF CREDITS — GRADUATE

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

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

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

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

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

ADDITIONAL ESSAY, THESIS, OR DISSERTATION ELECTIONS AND FEE POLICY

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

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

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

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

ACADEMIC SCHOLARSHIP

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

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

STUDENT ETHICS

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

ACADEMIC NEPOTISM

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

Degree Requirements

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

MASTER'S DEGREE

The minimum Graduate Division requirement for the master's degree is forty-five credits, at least thirty-six of which must be taken at the University. *In those master's degree programs*

where the college, school, or department requires more than the Graduate Division minimum, their requirements take precedence. The Graduate Division recognizes three master's degree plans, though not all plans are offered in each department (for exact information, see listings under individual departments in the appropriate sections of this bulletin):

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

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

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

CANDIDACY

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

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

TIME LIMITATION

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

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

DOCTOR OF PHILOSOPHY DEGREE

Requirements for the degree of Doctor of Philosophy emphasize an over-all understanding of and high competence in a field of knowledge, familiarity with cognate disciplines,

facility in the use of research techniques, and responsibility for the advancement of knowledge. The meeting of the requirements for the doctorate is tested primarily by examinations and the presentation of the dissertation rather than by a summation of courses, grades, and credits.

ADMISSION

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

PLAN OF WORK

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

Ph.D. COURSEWORK

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

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

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

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

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

DISSERTATION REGISTRATION

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

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

PROGRAM EXCEPTIONS

A student who wishes to request an exception to any of the Ph.D. program minimum requirements should file a written, detailed petition with his adviser. If the adviser approves the petition, he will forward it along with his recommendation to the Chairman of the Departmental Graduate Committee. If approved by the department, the petition will be forwarded to the Dean of Graduate Studies. All exceptions must ultimately be approved by the Dean of Graduate Studies.

TIME LIMITATIONS

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

CANDIDACY

A student may be admitted to the status of Ph.D. Candidate upon successful completion of his Final Qualifying Examination.* Before taking the qualifying examination, the student must have filed his *Plan of Work* and passed his foreign

* It is recommended that all departments requiring a preliminary examination in addition to the qualifying examination and dissertation presentation be responsible for the administration of the preliminary examination; thus, a preliminary examination remains a departmental, college, or school responsibility.

language examination. The written and oral portions of the qualifying examination will cover the applicant's major and minor areas, and such other related matters as the doctoral examining committee may prescribe.

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

LANGUAGE REQUIREMENT

Proficiency in at least one foreign language is a requirement of all Ph.D. programs.

1. Approved languages are French, German, Spanish, Russian.
2. Substitution of a language other than the approved languages may be made only for *sound academic reasons* and must be recommended by the student's adviser and Departmental Graduate Committee and approved by the Office for Graduate Studies. Approval of a substitute language is contingent upon satisfactory arrangements for on-campus testing; such arrangements are the responsibility of the student and the Graduate Committee of his department.
3. Proficiency in foreign languages may be demonstrated by either of the following:
 - a. Satisfactory performance on a standardized (Educational Testing Services) examination, or on a special on-campus examination in any language not tested by Educational Testing Services.
 - b. Satisfactory completion (grade of C or better) of undergraduate course work through the sophomore level (fourth semester or sixth quarter) at any accredited college or university in the language offered to meet the Ph.D. requirement. Evidence of the student's having "placed out" of any or all undergraduate courses through the sophomore level will constitute partial or full satisfaction of the Ph.D. foreign language requirement.
4. In the best academic interests of their Ph.D. programs, many departments within the University augment this basic foreign language requirement by requiring additional languages, additional language proficiency, or an addition proficiency in such areas as mathematical, statistical, or computer techniques necessary to research competence in the student's major field. *It is the student's responsibility to inform himself of any additional requirements.*

Graduate Division participation in the *Graduate School Foreign Language Testing* program conducted by Educational

Testing Services, Princeton, New Jersey, permits transfer of foreign language examination results taken under the auspices of Educational Testing Services at other participating institutions. In all cases, language examination scores submitted for transfer will be evaluated with respect to recency and the minimum passing scores established for doctoral students at Wayne State University.

Applications for Educational Testing Services' foreign language examinations, administered quarterly, may be secured from Testing and Evaluation, third floor, Mackenzie Hall. Students must apply for these examinations at least five weeks in advance.

RESIDENCE

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

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

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

ADVISER AND ADVISORY COMMITTEES

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

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

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

DISSERTATION OUTLINE

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

DISSERTATION PUBLIC LECTURE-PRESENTATION

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

GRADUATION

Each candidate for a degree or certificate must file an *Application for Degree* in the Records Office, 150 Administrative Services Building, not later than the last day of the final registration period for the quarter in which he expects to complete the requirements for the degree. Consult the academic calendar on page 6 of this bulletin. If an application for a degree was filed for a previous quarter in which the student did not graduate, a new application is necessary.

COMMENCEMENT

Information concerning commencement announcements, caps and gowns, invitations, tickets, time and place, assembling, and other relevant items will be mailed to the graduates by the Class Board prior to the event. Candidates for advanced degrees are requested and expected to attend the commence-

ment at which the University confers upon them the honor of the degree earned.

INDIVIDUAL INTERDISCIPLINARY Ph.D. PROGRAM

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

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

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

THESES AND DISSERTATIONS*

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

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

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, ob-

* Under PLAN B (see page 20) some departments require the completion of an essay prior to the granting of a master's degree. The manuscript must show evidence of scholarly study and writing and be related to the student's major. Candidates are directed to consult their departments as to matters of essay manuscript style.

jectivity, originality, and independence are maintained, the candidate may use data that he has derived from his University research. Neither the results of the research nor the publication of findings may be restricted by any non-University agency. The results of the research may be published prior to submission and acceptance of the thesis or dissertation, in which case Graduate Division notification is required.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Title Page Format

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

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

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

Dissertation Publication Plan—To insure publication, doctoral candidates must, upon assessment by the Office for Graduate Studies, pay the University Cashier a charge of \$30. The University arranges to have the dissertation microfilmed. Filing a *Microfilm Agreement Form* is required. A positive copy of the microfilm will be placed in the University Library and the abstract will be published in *Dissertation Abstracts*. Deviations from this procedure require the approval of the Office for Graduate Studies.

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

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

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

Graduate Financial Aid

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

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

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

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

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

Gerontology Awards — The Wayne State University Institute of Gerontology offers graduate traineeships plus tuition for study in a number of disciplines related to the field of aging. Interested students should contact the Institute of Gerontology, 311 Belcrest Hotel, 5440 Cass Avenue.

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

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

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

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

University Centers and Institutes

CENTER FOR THE STUDY OF COGNITIVE PROCESSES

758 Mackenzie Hall

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

RESEARCH INSTITUTE FOR ENGINEERING SERVICES

220 Engineering Building

The Institute is staffed by faculty from several departments of the College of Engineering and is established to promote multidisciplinary research programs of common interest.

The research capabilities of the Institute include statistical physics, molecular dynamics and electromagnetic wave propagation with particular direction toward the understanding of non-linear propagation of strong optical and microwave beams, the formulation and solution of both macroscopic and microscopic descriptions of strongly perturbed fluids, the study of molecular interactions through the use of molecular beams, and the study of atomic and molecular processes related to the non-equilibrium phenomena occurring in molecular lasers and disturbed atmospheric systems.

INSTITUTE OF GERONTOLOGY

311 Belcrest Hotel; 5440 Cass Avenue

In keeping with its legislative mandate, the Institute works closely with the Michigan Commission on Aging and other public and private agencies which serve the needs of older people at the state and local level. The program includes three major functions: training, research, and service. There are twelve programs at the University of Michigan and Wayne State University which offer a graduate degree with emphasis on gerontology.

CENTER FOR HEALTH RESEARCH

316 Cohn Building

The Center's purpose is to conduct research relevant to health generally, and to nursing, specifically. Since its inception in 1969, the Center has been developing research projects and programs in such areas as: family planning, health manpower, health promotion and maintenance, prevention of bacteriuria, evaluation of the quality of health care, communication and patient satisfaction, and referral as a link in the delivery of health care.

INSTITUTE OF LABOR AND INDUSTRIAL RELATIONS

5475 Woodward Avenue

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

CENTER FOR TEACHING ABOUT PEACE AND WAR

754 University Center Building

The Center was established in 1965 to further new approaches for study of peace and war on all educational levels, to collect information on the subject from many places and disciplines and to disseminate this information as widely as possible. The Center sponsors workshops, discussions, reference materials, public affairs forums, and curriculum research dealing with peace education.

CENTER FOR URBAN STUDIES

5229 Cass Avenue

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

Graduate Programs

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

School of Business Administration

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

concentrations

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

College of Education

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

College of Engineering

major	degree
Chemical Engineering	M, D
Civil Engineering	M, D
Electrical Engineering	M, D
Mechanical Engineering Sciences	M, D
Industrial Engineering and Operations Research	M, D
Metallurgical Engineering	M, D

Law School

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

College of Liberal Arts

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

School of Medicine

major	degree
Anatomy	M, D*
Biochemistry	M, D*
Microbiology	M, D*
Occupational and Environmental Health	M
Pathology	M
Pharmacology	M, D*
Physiology	M, D*
Psychiatry	M
Radiology	M

College of Nursing

major	degree
Administration of a Nursing Education Program	M
Administration of a Nursing Service	M
Health Nurse Clinician	M
Medical-Surgical Nursing	M
Nursing in Adult Psychiatry	M
Nursing in Child Psychiatry	M
Pediatric Nursing	M
Public Health Nursing	M
Teaching Clinical Nursing	M

College of Pharmacy and Allied Health Professions

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

School of Social Work

Methods of Social Work Practice taught with the following foci:	
major	degree
Case Work	M
Community Work	M
Group Work	M
Social Work Practice	M

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

GRADUATE DIRECTORY

Wayne State University
Detroit, Michigan 48202
Area Code 313

Graduate Admission

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

College Bulletins

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

Fellowships and Scholarships

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

International Student Advising

Foreign Student Office
470 Mackenzie Hall
Telephone: 577-3422

Loans

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

Student Employment

Placement Services
214 Administrative Services Building
Telephone: 577-3390

Graduate Assistantships

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

STUDENT SERVICES

OFFICE OF THE VICE PRESIDENT FOR STUDENT AFFAIRS

1056 Mackenzie Hall; 577-1996

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

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

OFFICE OF THE DIVISION OF STUDENT PERSONNEL

652 Student Center; 577-3350

439 Mackenzie Hall; 577-3353

This office coordinates services to meet student problems. It provides opportunities for students, individually or in groups, to voice their questions and concerns and to receive assistance in defining problems and working toward effective solutions. Furthermore, it seeks to minimize student frustrations so that the student may gain confidence in his ability to accomplish goals through established channels.

UNIVERSITY COUNSELING SERVICES

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

Testing and Evaluation

343 Mackenzie Hall; 577-3400

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

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

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

Counseling and Psychological Service

334 Mackenzie Hall; 577-3398

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

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

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

Academic Supportative Service (Reading Efficiency and Study Skills)

467 W. Hancock; 577-5568

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

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

EDUCATIONAL REHABILITATION SERVICES

450 Mackenzie Hall; 577-3362

Educational Rehabilitation Services provides numerous resources and facilities for disabled students. The entire campus has been provided with ramps and other facilities so that stu-

dents in wheelchairs may have maximum independence and complete accessibility to classrooms and to other areas. Fully-equipped study rooms and volunteer recording and reading services are available to blind students. Other services include orientation programs, personal counseling, career counseling, physical therapy, adaptive equipment and wheelchair repair, registration, reserved parking, and individual administration of class examinations.

HEALTH SERVICE

5th Floor, Mackenzie Hall; 577-2000

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

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

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

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

HOUSING OFFICE

122 Student Center; 577-3486

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

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

Other housing includes the recently completed Helen L. DeRoy Apartments providing 257 housing units for graduate, professional and handicapped students. There are efficiency, one bedroom, and two bedroom apartments that are available furnished or unfurnished.

Operated by students, the Off-Campus Housing Office maintains a listing of furnished and unfurnished houses, apart-

ments, and rooms in the immediate University and the Metropolitan Detroit area.

INTERNATIONAL STUDENT SERVICES AND ACTIVITIES OFFICE

470 Mackenzie Hall; 577-3422

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

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

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

MILITARY AND VETERANS AFFAIRS

5743 Woodward; 577-3374

Veterans have an excellent resource in the Office of Military and Veterans Affairs. Knowledgeable counselors will be glad to discuss individual educational problems and goals. All veterans must visit this office — or the Military and Veterans Affairs desk at registration time — in order to be certified for their educational benefits. An active Vet's Club is located at 148 Mackenzie Hall; 577-3356.

OFFICE OF SCHOLARSHIPS AND FINANCIAL AIDS

222 Administrative Services Building; 577-3378

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

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

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

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

OFFICE OF STUDENT ORGANIZATIONS

351 Student Center; 577-3444

Through this office, students may obtain information about any of the 180 currently recognized campus organizations. Predominantly student-initiated, student-centered and student-directed, these organizations conduct numerous programs and activities which cover a wide range of purposes. Students may usually find an organization to suit any individual interest or concern. The organizations include professional and social fraternities and sororities; musical, dramatic, and speech organizations; political and social action groups; professional and departmental groups; religious and ethnic groups; special interest groups; student governments; and student publications.

SPECIAL STUDENT SERVICE PROGRAMS

370 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 a higher education.

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

STUDENT CENTER BUILDING

556 Student Center; 577-3485

In addition to dining, lounge, and study and meeting areas, the Student Center Building contains a boutique, which offers

school supplies, sundries, gift items, and magazines. It also houses the Room Reservations Office and recreational facilities.

UNIVERSITY PLACEMENT SERVICES

214 Administrative Services Building; 577-3390

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

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

COMPUTING AND DATA PROCESSING CENTER

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

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



School of Business Administration



Foreword

The School of Business Administration is a professional school concerned with instruction 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 both 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 program of study in the School of Business Administration designed to provide professional education.

Programs available include: theory and practice of accounting, finance, management, and marketing, and lead to the degrees of Bachelor of Science in Business Administration or Bachelor of Arts in Business Administration.

Graduate Program

The graduate program leading to the Master of Business Administration degree is aimed at training individuals in the science and techniques of business administration. The program requires a minimum of forty-eight credits, provided that the student has completed the pre-program foundation requirements.

UNDERGRADUATE PROGRAMS

ADMISSION

Pre-Business Administration

The School of Business Administration will consider for admission to senior college any student who has completed at least fifty-three semester credits or eighty quarter credits at an accredited college with a 2.0 h.p.a. (C) or better. The maximum number of transfer credits from a junior or community college is ninety-six quarter credits or sixty-four semester credits.

Students from colleges other than Wayne State University who meet the above requirements must submit an *Application for Admission* and their records to the Admissions Office of the University. Qualified students will then be referred to the Admissions Office of the School of Business Administration. Students showing promise of successfully completing one of the programs in the School of Business Administration will be admitted.

Pre-Business Administration Course Requirements

Students who are admitted, but have not satisfied the requirements stated below, will be required to complete them during the first three quarters after admission.¹ The pre-business administration minimum requirements are as follows:

Accounting	three quarter courses or two semester courses in principles (Accounting 0310, 0311, and 0410 or 0518) ²
Computer Science	two courses (Computer Science 0201 and 0220)
Economics	two courses in principles (Economics 0101 and 0102)
English	two courses in composition (English 0150 and 0209) ³
Mathematics	one course in college-level mathematics, algebra, finite mathematics, or calculus (Mathematics 0150 or 0151)
Psychology	one course (Psychology 0198)
Sociology	one course (Sociology 0201)
Speech	one course in public speaking (Speech 0200)
Statistics	one course (Economics 0520 for pre-business students; Finance and Business Economics 0530 for students admitted to School)
Humanities	two quarter courses or one semester course selected from the following areas: American studies, art, art history, classics, English (beyond English requirement), foreign language (beyond first year), humanities, music, theatre.

¹ These requirements apply to students admitted as freshmen in fall, 1974 or after. The courses in parentheses are suggested courses offered at Wayne State University.

² Majors in accounting, and finance, and students specializing in operations management must complete Accounting 0410 rather than 0518.

³ No student from the School of Business Administration will be recommended for a baccalaureate degree unless he has successfully passed the English Proficiency Examination in Composition given by the Composition Clinic, College of Liberal Arts. It is recommended that entering students take the English Proficiency Examination in the first quarter following admission in order to avail themselves of remedial work if needed.

Natural Science two quarter courses or one semester course selected from the following areas: astronomy, biology, botany, chemistry, geology, mathematics (beyond mathematics requirement), physical science, physics, zoology.

Social Science two quarter courses or one semester course selected from the following areas: anthropology, geography, history, philosophy (not religion), political science (see American Government, page 11), psychology (beyond the introductory course), social science, sociology (beyond the introductory course).

DEGREE PROGRAMS

After completing the Pre-Business Administration Course Requirements, the business administration student must complete:

1. The Core Curriculum
2. The Major Requirements
3. Business Electives
4. Non-Business Electives
5. Free Electives

CORE CURRICULUM

All students must complete the following core courses:

Prerequisite or Limitation

ACC 0551 Business Law — Contracts, Agency

Additional accounting core courses are taken as pre-business administration requirements.

FBE 0523 Financial Institutions

FBE 0529 Business Finance ECO 0201 and ACC 0311

FBE 0540 Quantitative Methods II:
Statistical Methods FBE 0530 or ECO 0520 or equiv.

MGT 0362 Introduction to Management One course each in
psychology and sociology

MGT 0461 Introduction to Production
Management MGT 0360 or 0362

MGT 0660 Theories of Organization MGT 0360 or 0362
or consent of instructor

MGT 0690 Business Policy To be taken as one of
(ACC 0690) (FBE 0690) the last 6 courses towards
(MKT 0690) bachelor's degree

MKT 0342 Marketing I — Principles ECO 0102

MKT 0533 Business Reports No credit after former MKT 0652

MKT 0535 Marketing II — Intermediate MKT 0342. No credit
after former MKT 0645

MKT 0590 Social and Political Influences
on Business (ACC 0590)
(FBE 0590) (MGT 0590)

MAJORS

Majors are offered in accounting, finance, management and organization sciences, and marketing. After selecting a major students consult the appropriate department to design a plan of work.

ACCOUNTING (ACC)

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

ACC 0510	Advanced Accounting Theory I
ACC 0511	Advanced Accounting Theory II
ACC 0512	Advanced Accounting Theory III
ACC 0513	Accounting Information Systems
ACC 0514	Auditing
ACC 0516	Cost Accounting
ACC 0517	Taxes on Income
ACC 0553	Business Law — Corporations, Partnerships
ECO 0508	Public Control of Business

One of the following:

ACC 0612	Distribution Cost Accounting
ACC 0615	Michigan Taxes
ACC 0617	Governmental Accounting
FBE 0627	Advanced Business Finance

FINANCE (FBE)

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

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

One course from a departmental list

MANAGEMENT AND ORGANIZATION SCIENCES (MGT)

The major in management and organization sciences prepares students for managerial positions in business, industry, and government. Management theory, concepts, and practice are presented. The major is oriented toward problem recognition and solution. Students complete two courses and then select an area of specialization.

MGT 0574	Collective Bargaining
MGT 0662	Behavior in Organizations

Operations Management

ACC 0516	Cost Accounting
MGT 0561	Management Decision Making
MGT 0667	Models in Operations Management
MGT 0696	Seminar in Operations Management

General Management

MGT 0566	Small Business Management
MGT 0577	Manpower Management
MGT 0661	Management Planning and Control Systems

One additional management course

Personnel and Industrial Relations

MGT 0570	Personnel Administration
MGT 0577	Manpower Management
MGT 0678	Current Issues in Employee Relations

One course from a departmental list

MARKETING (MKT)

The marketing major provides a basic knowledge of the concepts and activities by which companies identify customer needs and translate them into product, distribution, pricing and promotion decisions.

Students who major in marketing will complete three courses which are basic to all marketing activities, and then may choose other marketing courses to provide a focus for careers in sales management, advertising and public relations, retailing, or international marketing.

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

Three specialization courses from a department list

ELECTIVES

Accounting majors must complete eight credits in business electives.

Other majors must complete:

1. Eight credits in business electives to be selected from courses offered in the School of Business Administration.
2. Four credits in non-business elective courses. This selection *must* be made from courses offered outside the School of Business Administration.
3. Twelve credits in free electives. These may be courses offered by the School of Business Administration or by another unit of the University.

DEGREE REQUIREMENTS

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

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

1. Complete 192 credits. This includes the pre-business requirements, core courses, major requirements, and electives.
2. Maintain satisfactory honor point average, as described on page 14.

Eighty credits must be taken in subjects *other than* business and economics, and eighty credits must be taken in business and economic subjects. Courses in economic principles and economic history may be counted in either the business and economics group or the non-business group.

BACHELOR OF ARTS IN BUSINESS ADMINISTRATION

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

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

TEACHING CERTIFICATE

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

PROFESSIONAL DEVELOPMENT CO-OP PROGRAM

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

The program may be undertaken at the beginning of the junior year or upon admission to the School of Business Administration if the student has previously earned more than the minimum eighty credits required for admission to the School. Students interested in this program should contact the University Counselor, Cooperative Education, 198 Speech and Language Building.

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

INTERRUPTION IN RESIDENCE

All students must fulfill the requirements of the School of Business Administration in effect at the time of their admission to the School. Students returning to school after a five year absence are required to conform to the requirements in effect at the time of their return to school.

GRADUATE PROGRAMS

The graduate program leading to the Master of Business Administration degree provides a comprehensive professional education in business. The program builds upon a common body of knowledge. It is designed to provide breadth, depth, integration, and flexibility. The minimum forty-eight hour program is composed of a core, a concentration area, and an elective area.

CORE

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

ACC 0702	Current Accounting Issues
FBE 0701	Quantitative Methods Applied to Business Decisions
FBE 0782	Managerial Economics and Finance
MGT 0706	Management and the Organization
MGT 0774	Business and Contemporary Society
MKT 0703	Marketing Management
MGT 0790 (ACC 0790) (FBE 0790) (MKT 0790)	Seminar in Business Policy

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

The core course in the student's area of concentration is waived:

Concentration Area	Core Course Waived
Business Economics	FBE 0782
Finance	FBE 0782
Financial Accounting	ACC 0702
Industrial Relations/Personnel	MGT 0706
Management	MGT 0706
Managerial Accounting	ACC 0702
Marketing	MKT 0703
Operations Management	FBE 0701

A student may elect the core course in his or her area of concentration with the consent of the graduate adviser. The course, *Seminar in Business Policy*, must be taken in the last sixteen hours of graduate work after completion of the core courses.

CONCENTRATION AREA

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

Areas available for concentration are: business economics, finance, financial accounting, industrial relations/personnel, management, managerial accounting, marketing, and operations management.

The courses listed within each concentration area below are recommended. Other combinations may be worked out with a graduate adviser.

BUSINESS ECONOMICS

Fin. & Bus. Econ. 0709	Money and Capital Markets
Fin. & Bus. Econ. 0783	Business Conditions Analysis
Fin. & Bus. Econ. 0785	Seminar in Business Economics
Fin. & Bus. Econ. 0786	Business and the Public Interest

FINANCE

Fin. & Bus. Econ. 0721	Asset Management
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Two of the following:

Fin. & Bus. Econ. 0709	Money and Capital Markets
Fin. & Bus. Econ. 0722	Long-Term Financing Policies
Fin. & Bus. Econ. 0723	Investment Policies

FINANCIAL ACCOUNTING

Accounting 0714	Advanced Tax Problems
Accounting 0717	Advanced Auditing
Accounting 0798	Seminar in Contemporary Financial Accounting

INDUSTRIAL RELATIONS/PERSONNEL

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

MANAGEMENT

Management 0761	Human Behavior in Organizations
Management 0762	Managing the Complex Organization

One of the following:

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

MANAGERIAL ACCOUNTING

Accounting 0712	Tax Problems in Business Affairs
Accounting 0713	Advanced Cost Accounting, Control, and Analysis
Accounting 0715	Information Systems for Planning and Control

MARKETING

Marketing 0740	Marketing Problems
Marketing 0745	Marketing Research and Methodology

One of the following:

Marketing 0742	Sales Management Problems
Marketing 0743	Advertising Policy and Administration
Marketing 0747	Theory in Marketing
Marketing 0797	Seminar in Marketing

OPERATIONS MANAGEMENT

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

Note: The choice of a specific concentration area can be made at the time of admission or later. The student may wish to consult one or more graduate advisers before making a selection; however, after choosing a concentration area, the selection of specific courses must be done with the assistance of a graduate adviser. Specific courses chosen must be approved by the Graduate Officer. To meet particular career objectives, a student may wish to construct an individualized concentration area. This can be done with the approval of an adviser and the Graduate Officer.

ELECTIVES

Each M.B.A. student selects three elective courses with the assistance and approval of his or her academic adviser. The purpose of these electives is to provide the student with the option of attaining additional depth in an area or attaining competence in another area. Electives may be selected from courses carrying graduate credit offered by the School of Business Administration or another college of the university. The graduate adviser's approval is needed if a student wishes to take an elective before completing core courses.

FOUNDATION REQUIREMENTS

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

M.B.A.-ACCOUNTING OPTION

The School of Business Administration has a special program for students holding a baccalaureate degree in a field other than accounting and who wish to qualify for the CPA examination. In this program, a student may earn a major in Accounting while attaining a Master of Business Administration. For specific details consult the chairman of the accounting department or a graduate adviser in accounting.

GRADUATE ADMISSION

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 16. The following additions and amendments pertain to the School of Business Administration.

Admission to the master's degree programs in business administration is limited to holders of baccalaureate degrees from accredited institutions who demonstrate high promise of success in graduate business study. Several criteria of predictive value may be included in the evaluation of an applicant for admission. Among the criteria which may be considered are the applicant's:

1. Undergraduate grade averages and the trend of his grades during his undergraduate education;
2. Performance on the Admission Test for Graduate Study in Business (ATGSB).
3. Relevant experience.

The Graduate Admissions Committee will 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 recommendations by the Graduate Admissions Committee.

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

The Admission Test for Graduate Study in Business must be taken prior to admission to graduate study. This test is administered by the Educational Testing Service, 20 Nassau Street, Princeton, New Jersey. Applications for the test must be received by the Educational Testing Service at least three weeks in advance of the test date, accompanied by the examination fee. Applications for the test and the dates of administration may be obtained from the Office of the Graduate Program in the School of Business Administration.

ADVISERS

A graduate adviser is appointed at the time the student is admitted to the graduate program. The adviser assists the student in planning his program of study and guides his research. The adviser will approve a *Plan of Work*; approve an essay or thesis where applicable; and will arrange for the final oral examination where required. The student must obtain the approval of his or her adviser for specific concentration and elective courses.

DEGREE REQUIREMENTS

Students are advised that enrollment in any course in the graduate program must be in accord with an approved *Plan of Work*.

In work toward a master's degree, no credit may be more than six years old at the time the degree is conferred.

In addition to the following general requirements, additional requirements may be specified. The student should consult the program and the requirements of the area in which he plans

to concentrate, and should see page 19 for additional academic regulations and requirements.

CANDIDACY

Candidacy is an advanced status authorized by the Graduate Office of the School of Business Administration upon evidence of academic competence.

FINAL REQUIREMENTS

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

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

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

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

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

PREPARATION OF ESSAYS AND THESES

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

FINAL ORAL EXAMINATION

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

ACADEMIC REGULATIONS

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the School of Business Administration.

The following regulations apply to undergraduate students in the School of Business Administration; items indicated by an asterisk apply also to graduate students.

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.

RESIDENCE

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

ATTENDANCE AT COMMENCEMENT*

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

CONDUCT*

Each student is subject to official regulations governing student activities and student behavior. Furthermore, it is the responsibility of each student to adhere to the principles of academic integrity.

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

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

NORMAL PROGRAM LOAD

The normal academic load for a student in the School of Business Administration is from twelve to eighteen credits

each quarter, depending upon the particular courses elected. No student should expect to carry a full load and at the same time do outside work of any extent. Students desiring to carry more than the normal load must obtain written permission from the Dean or his representative prior to registration. Under no circumstances will excess credits be honored when taken without approval.

ACADEMIC STANDING — UNDERGRADUATE

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 major), he will be placed on probation with the understanding that he will be given two quarters in which to restore himself to good academic standing (honor point average 2.0 or better cumulatively and in his major). If probationary status is not removed within two quarters, the student will be excluded from the School of Business Administration for at least one calendar year. After one year of exclusion, the student may apply for readmission to the School. The decision to readmit the student will be based upon evidence presented by the student that circumstances have changed during the year and that his or her probability of success has significantly increased. Readmission will be made on the recommendation of the Admissions Committee. Unless the academic deficiency is corrected in the quarter subsequent to readmission, the student will be permanently dismissed from the School of Business Administration.

EXCLUSION

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

PROBATION*

A student who registers for but fails to complete an excessive number of courses, as determined by the Dean or his representative, may be placed on probation.

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

ACADEMIC STANDING — GRADUATE

Students who have been admitted to the Graduate Program on probation are expected to remove the probationary status by the completion of the first sixteen credits of course work 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 placed on probation at any time their graduate average becomes less than 3.0. After being placed on probation, students

will be permitted twelve credits to attain a cumulative 3.0 honor point average. Failure to do so within this limit will result in release from the program.

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 of the School. See pp. 36 and 39.

GRADUATION WITH DISTINCTION

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

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

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



FINANCIAL AIDS

SCHOLARSHIPS

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

American Metal Climax Foundation—Kawneer Division Scholarship. Awarded to students in Business Administration in an amount of approximately \$750 per year.

Berger and Wild Scholarship. Available to junior or senior students who have been accepted in the accounting curriculum.

The Morris H. Blumberg Scholarship Fund. Established to aid students interested in the area of small business. The scholarship is based on financial need and academic achievement.

Campbell-Ewald Company Internships. Internships are granted on a competitive basis in advertising copy and in advertising art. Each intern is assigned to Campbell-Ewald on a full time basis for two summer months to receive experience in the work of an advertising agency.

Chrysler Corporation. Donations of \$2,500 per year are given to students studying business.

Sam and Leonard Fink Memorial Fellowship. Applications should be made to the Graduate Office of the School of Business Administration.

General Motors Scholarship Fund. Primarily for students in engineering, but also helps students who intend to pursue a career in industry, with special preference to disadvantaged minority group students.

Evelyn McCabe Foundation Scholarship. Applications should be made to the Graduate Office of the School of Business Administration.

George M. and Mabel H. Slocum Foundation Scholarship in Advertising. Applications should be made to the Graduate Office of the School of Business Administration.

In addition to the above private scholarships, students in the School of Business Administration are eligible for University funds such as the Board of Governors Scholarship and federal funds such as the Educational Opportunity Grant.

AWARDS

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

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

Beta Gamma—Edward G. Eriksen Scholarship Honor Award. Established by Beta Gamma, honorary business administra-

tion society, in memory of its retired adviser, Edward G. Eriksen. A cash award of \$25 to be awarded each year for ten years to the business administration graduating senior with the highest scholarship.

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

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

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

ASSISTANTSHIPS

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

STUDENT ORGANIZATIONS

The Steering Committee of the School of Business Administration consists of the Dean, one faculty member, and one representative from each recognized business administration student organization.

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

Alpha Kappa Psi, oldest national professional fraternity in business, established a local chapter at Wayne State University in 1941.

Delta Sigma Pi, an international professional fraternity in business administration, organized a local chapter at Wayne State University in 1949.

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

Sigma Iota Epsilon, national honorary management society, initiated *Nu Chapter* at Wayne State University on May 1, 1959. Membership acknowledges outstanding scholarship in the field of business administration and 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.

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.

Wayne State University School of Business Administration is a participating school in the *National Affiliation of Concerned Business Students*, a non-profit educational organization founded to promote the development of courses and research on the social role of the corporation.

COURSES OF INSTRUCTION¹

Accounting (ACC)

Undergraduate Courses

0310. Elementary Accounting Theory I. Cr. 4.
Prereq: sophomore standing. The theory of accounting for business assets and the interpretation and communication of accounting data.

0311. Elementary Accounting Theory II. Cr. 4.
Prereq: ACC 0310. Continuation of Accounting 0310.

0400. Internship in Accounting. Cr. 1-8.
Prereq: consent of internship committee. To provide the opportunity for selected students to put theory into practice on the job. Selected students will be assigned to cooperating business organizations for internship periods of one quarter.

0410. Elementary Accounting Theory III. Cr. 4.
Prereq: ACC 0311. Continuation of Accounting 0311 with an integrated application of accounting and automatic data processing principles, practices, and procedures utilizing unit record equipment in the solution of business problems. Primarily intended for accounting majors.

0490. Directed Study in Accounting. Cr. 1-4 (Max. 8).
Prereq: consent of chairman.

0510. Advanced Accounting Theory I. Cr. 4.
Prereq: ACC 0410. Asset valuation principles.

0511. Advanced Accounting Theory II. Cr. 4.
Prereq: ACC 0510. Interpretation of equities in corporation assets and measurement of income.

0512. Advanced Accounting Theory III. Cr. 4.
Prereq: ACC 0511. Analysis of financial situations and specialized statements including consolidated statements, statements of funds, and statements adjusted for price-level fluctuation.

0513. Accounting Information Systems. Cr. 4.
Prereq: ACC 0511, and CSC 0201 or ACC 0562. Principles of design of accounting systems and procedures to safeguard assets and assure a flow of accounting data, including a study of electronic data processing equipment in its relationship to the accounting system and other business data.

0514. Auditing. Cr. 4.
Prereq: ACC 0511. Principles and procedures of auditing; professional standards and responsibilities of the certified public accountant.

0516. Cost Accounting. Cr. 4.
Prereq: ACC 0410. Theory and practice of manufacturing cost accumulation, analysis, and control.

0517. Taxes on Income. Cr. 4.
Prereq: accounting majors, ACC 0410; others, ACC 0311 or 0601.

Theory of taxes on income and practical application of related laws and regulations.

0518. Administrative Accounting. Cr. 4.
Prereq: ACC 0311. No major credit in accounting. The use of accounting for administrative information and decisions, including product costing and pricing, cost analysis, financial analysis, budgeting, and internal control.

0551. Business Law—Contracts, Agency. Cr. 4.
Introduction to the court system and laws of contracts and agency, bailments and sales.

0553. Business Law—Corporations, Partnerships. Cr. 4.
Legal responsibility of corporations and partnerships, bankruptcy, and negotiable papers.

0554. Real Estate Law. Cr. 4.
Laws governing ownership, lease and transfer of real property; security devices affecting real estate; wills and trusts.

0555. Recent Business Legislation. Cr. 4.
Recent trends in legislation affecting business and industrial organizations.

0556. Legal Environment. Cr. 4.
Legal restraints on the business enterprise including public control, forms of business entities, and other aspects of legal environment in which a business enterprise operates.

0562. Electronic Data Processing. Cr. 4.
Survey of business applications of computers. Introduction to flow charting, programming languages, and use of operating system in batch and terminal modes. Use of canned programs for problem-solving.

0563. Computerized Accounting Systems. Cr. 4.
Prereq: ACC 0311, and CSC 0201 or ACC 0562. Integrating accounting systems with computers. Further development of programming languages. Other topics include operating systems, hardware considerations, documentation, and internal control.

0590. (MKT 0590) Social and Political Influences on Business (FBE 0590) (MGT 0590). Cr. 4.
The corporation's relationship to the larger community. Appropriate roles and responsibilities of business and government are investigated. Contemporary issues are discussed.

0601. Financial Accounting. Cr. 4.
Prereq: baccalaureate degree or consent of adviser. 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.

0602. Managerial Accounting. Cr. 4.
Prereq: baccalaureate degree or consent of adviser. Fundamental principles of managerial accounting, dealing primarily with the preparation and utilization of financial information for internal management purposes.

0605. Business Law. Cr. 4.
Prereq: baccalaureate degree or consent of adviser. No credit after Accounting 0551 or 0553. Intensive study of the American legal system with particular attention to historical background and the court system. Laws of contracts, agency, sales and negotiable papers, suretyship, bailments; business crimes and torts.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0612. Distribution Cost Accounting, Cr. 4.

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

0615. Michigan Taxes, Cr. 4.

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

0617. Governmental Accounting, Cr. 4.

Prereq: ACC 0311 or 0601. Accounting principles and procedures applied to fund accounting of governmental units.

0624. Insurance Law, Cr. 4.

Prereq: FBE 0520 or 0521. Fire, marine, and casualty insurance law, the law of suretyship, together with certain phases of the law as applied to life insurance. Workmen's Compensation, Social Security, and Unemployment Compensation.

0654. Business Computer Programming, Cr. 4.

Prereq: ACC 0563 or consent of instructor. Programming techniques applied to business activities; the study of machine languages and information retrieval techniques for decision making.

0690. (MGT 0690) Business Policy (FBE 0690) (MKT 0690), Cr. 4.

No graduate credit. To be taken as one of last six courses towards bachelor's degree. Policy determination; integration across the functional areas of business.

Graduate Courses

0702. Current Accounting Issues, Cr. 4.

Prereq: ACC 0601 and 0602 or equiv. Current accounting issues in the areas of financial and managerial accounting. Contemporary trends challenging accountants, investors, managers, and other interested parties.

0711. Patonian Accounting Logic, Cr. 4.

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

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

Application of tax laws and regulations to the business affairs of corporations and individuals.

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

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

0714. Advanced Tax Problems, Cr. 4.

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

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

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

0717. Advanced Auditing, Cr. 4.

Prereq: ACC 0514. 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.

0718. Auditing, Cr. 4.

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

0751. Information Systems Design I, Cr. 4.

Prereq: CSC 0201 or ACC 0562. Logic and structure of computerized information systems. Systems flow charting and feasibility studies.

0752. Information Systems Design II, Cr. 4.

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

0790. (MGT 0790) Seminar in Business Policy (FBE 0790) (MKT 0790), Cr. 4.

Capstone course concerned with the integration of organized bodies of business administration knowledge and their application to the environment of decision makers. To be taken in final sixteen hours of graduate program and after all core courses.

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

Prereq: consent of adviser and graduate officer.

0796. Seminar in Managerial Accounting, Cr. 4.

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

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

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

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

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

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

Prereq: consent of adviser.

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

Prereq: consent of adviser.

Finance and Business Economics (FBE)

Undergraduate Courses

0490. Directed Study in Business Administration, Cr. 1-4 (Max. 8).

Prereq: consent of chairman.

0520. Risk Management, Cr. 4.

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

0523. Financial Institutions. Cr. 4.

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

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

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

0525. Business Research. Cr. 4.

The process of making inferences from evidence. The basic concepts of research, types of empirical research methods, research design, research errors, and data analysis.

0529. Business Finance. Cr. 4.

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

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

Prereq: one course in college mathematics. Measures of central tendency and dispersion. Introduction to probability; normal, binomial, exponential, and Poisson distributions. Statistical inference and sampling methods.

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

Prereq: FBE 0530, or ECO 0520, or equiv. Uses of statistical methods in business. Topics include applications of sampling, index numbers, time-series, and regression methods to auditing and market research, production control, sales forecasting, and related areas.

0590. (MKT 0590) Social and Political Influences on Business (ACC 0590) (MGT 0590). Cr. 4.

The corporation's relationship to the larger community. Roles and responsibilities of business and government; contemporary issues.

0604. Financial Administration. Cr. 4.

Methods of financial administration, including the management of funds, financial planning, and policies of financial institutions.

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

Prereq: bachelor's degree or consent of adviser. Fundamental economic laws which influence business in its decision making such as pricing, product mix, wage policy, and factor mix. Causes of instability in aggregate economic activity and the effects upon the business firm.

0609. Introduction to Quantitative Methods. Cr. 4.

Prereq: one course in college mathematics; baccalaureate degree. Introduction to statistical inference, probability, sampling theory, estimation and hypothesis testing.

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

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

0622. Portfolio Management. Cr. 4.

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

0627. Advanced Business Finance. Cr. 4.

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

0690. (MGT 0690) Business Policy (ACC 0690) (MKT 0690). Cr. 4.

No graduate credit. To be taken as one of last six courses towards bachelor's degree. Policy determination; integration across the functional areas of business.

Graduate Courses

0700. Scientific Inquiry. Cr. 4.

The nature of science and methodology; theory construction and patterns of scientific explanations, with particular reference to the social and management sciences.

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

Open only to MBA students. Selected applications of quantitative tools and techniques to production, marketing and finance. Computer utilization is emphasized.

0709. Money and Capital Markets. Cr. 4.

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

0721. Asset Management. Cr. 4.

The scope and objective of asset management. Analysis of problems concerning the management and financing of working capital. Development of capital budgeting models under conditions of uncertainty.

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

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

0723. Investment Policies. Cr. 4.

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

0755. Intermediate Statistical Analysis. Cr. 4.

Prereq: FBE 0784. Multivariate analysis and design of experiments.

0756. Seminar in Statistics. Cr. 4.

Prereq: FBE 0755. Selected topics.

0781. Administrative Systems. Cr. 4.

Prereq: FBE 0701. Modern administrative systems with emphasis on decision making processes and their behavioral implications.

0782. Managerial Economics and Finance. Cr. 4.

Economic and financial aspects of corporate management. Business forecasting; production, inventory, and cost control; pricing practices and policies; capital budgeting and financial planning.

0783. Business Conditions Analysis. Cr. 4.

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

0784. Statistical Analysis. Cr. 4.

Prereq: FBE 0701. Statistical inference and estimation, sampling theory, classical and Bayesian decision theory, regression and correlation analysis.

0785. Seminar in Business Economics. Cr. 4.

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

0787. International Business Finance. Cr. 4.

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

0788. Problems in International Business. Cr. 4.

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

0789. Seminar in International Business. Cr. 4.

Topics of current interest.

0790. (MGT 0790) Seminar in Business Policy (ACC 0790) (MKT 0790). Cr. 4.

Capstone course concerned with the integration of organized bodies of business administration knowledge and their application to the environment of decision makers. To be taken in final sixteen hours of graduate program and after all core courses.

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

Prereq: consent of adviser and graduate officer.

0796. Seminar in Finance. Cr. 4.

Prereq: FBE 0722. Selected topics of current interest in the field of finance.

0797. Seminar in Administrative Science. Cr. 4.

Prereq: 32 graduate credits or consent of adviser. A graduate seminar to analyze and evaluate the impact of automation and technological change on administration, its practice, theories and principles.

0798. Seminar in Business Administration. Cr. 4.

Prereq: consent of graduate adviser.

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

Prereq: consent of adviser.

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

Prereq: consent of adviser.

Management (MGT)

Undergraduate Courses

0160. The Dynamics of Business. Cr. 4.

No credit after MGT 0360 or 0362, MKT 0342, FBE 0529. Introduction to the dynamics of contemporary business administration; historical development, internal division of activities (accounting, finance, marketing, production), and responses to pressures from internal and external environments.

0362. Introduction to Management. Cr. 4.

No credit after Management 0360. Prereq: one course each in psychology and sociology. Introduction to management theory and practice. The application of theory to typical management problems. The problems of effective supervision, managing groups and departments, designing an effective organization, and dealing with the external environment.

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

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

0450. Professional Practice in Business Administration. Cr. 1-4.

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

0461. Introduction to Production Management. Cr. 4.

Prereq: MGT 0360 or 0362. Analysis of the production cycle. Development and application of models for cost control, planning and scheduling, resource allocation, quality control and information.

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

Prereq: consent of chairman.

0561. Management Decision Making. Cr. 4.

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

0566. Small Business Management. Cr. 4.

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

0567. Small Business Management Problems. Cr. 4.

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

0570. Personnel Administration. Cr. 4.

Prereq: MGT 0360 or 0362. Consideration of the personnel functions as usually assigned to a personnel or industrial relations staff. Principles of personnel or industrial relations administration.

0574. Collective Bargaining. Cr. 4.

Prereq: MGT 0360 or 0362 or consent of instructor. A basic course

in labor relations examining the development of union-management relationships; the philosophy and practice of collective bargaining.

0575. Comparative Industrial Relations Systems. Cr. 4.

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

0576. Office Administration. Cr. 4.

Prereq: MGT 0360 or 0362 or consent of instructor. Developing and maintaining effective office systems and environment.

0577. Manpower Management. Cr. 4.

Prereq: MGT 0360 or 0362. Organizational manpower policy, planning and programming. The functioning of internal labor markets and management's response to such variables as their own fluctuating manpower needs, changes in technology and labor market conditions, and to such issues as the employment of women, minorities, and the disadvantaged.

0590. (MKT 0590) Social and Political Influences on Business (ACC 0590) (FBE 0590). Cr. 4.

The corporation's relationship to the larger community. Roles and responsibilities of business and government; contemporary issues are discussed.

0606. The Process of Management. Cr. 4.

Prereq: bachelor's degree and consent of adviser. Not open to undergraduate business majors. Study of management activities including planning, organizing, staffing, directing, and control. Examination of management theory, practice, and problems.

0607. Industrial Relations. Cr. 4.

Prereq: bachelor's degree and consent of adviser. Not open to students who have taken undergraduate industrial relations courses. The legal, philosophical, and institutional environment of industrial relations, with insight into collective bargaining and other major aspects of industrial relations.

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

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

0660. Theories of Organization. Cr. 4.

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

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

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

0662. Behavior in Organizations. Cr. 4.

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

0667. Models in Operations Management. Cr. 4.

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

0674. Administering the Labor Agreement. Cr. 4.

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

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

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

0690. Business Policy (ACC 0690) (FBE 0690) (MKT 0690). Cr. 4.

No graduate credit. To be taken as one of the last six courses towards bachelor's degree. Policy determination; integration across the functional areas of business.

0696. Seminar in Operations Management. Cr. 4.

Prereq: MGT 0667. Selected topics in production management. Computer applications in managing complex production systems.

Graduate Courses

0706. Management and the Organization. Cr. 4.

Contemporary administrative practice, research, and theory on: organization structure, assessing organizational effectiveness, organizational adaptation and change; managing group and interpersonal relations, communication, decision making, leadership process and styles, work motivation, performance and satisfaction.

0751. Operations Management I. Cr. 4.

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

0753. Operations Management II. Cr. 4.

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

0754. Seminar in Operations Management. Cr. 4.

Prereq: differential and integral calculus; knowledge of computer language; FBE 0784 or equiv. Topics in operations management. Case studies may be used.

0761. Human Behavior in Organizations. Cr. 4.

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

0762. Managing the Complex Organization. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. The formal structure of complex organizations, levels of management, authority and power, stratification, departmentation, decentralization, organizational design and evaluation. The problems of how or

ganizations adapt to their environments, assessing the impact of technology on organizational structure, and designing effective information and decision making systems.

0763. Organizational Change and Development. Cr. 4.

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

0764. Management of Human Resources. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser for Fall 1973 admission or after; others consent of adviser. Concepts and models of manpower management. Problem solving methods. The problems of effective utilization of existing human resources. Organization's internal labor resources and the demands of changing labor markets.

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

Prereq: MGT 0606 or equiv. and consent of adviser for Fall 1973 admission or after; others consent of adviser. The development of interpersonal skills needed for effective management. Insight into managerial behavior through direct experience of interpersonal and group behavior. Develop skills in: problem solving, leadership, communication, and conflict management.

0769. Executive Development. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser for Fall 1973 admission or after; others consent of adviser. The nature and evolution of executive development. Objectives of development programs. Identification of executive skills. Design, implementation, and evaluation of development programs. Techniques of development and their relative merits.

0770. American Business Values. Cr. 4.

Prereq: MGT 0774. 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.

0774. Business and Contemporary Society. Cr. 4.

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

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

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

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

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

0790. Seminar in Business Policy (ACC 0790) (FBE 0790) (MKT 0790). Cr. 4.

A capstone course concerned with the integration of organized bodies of business administration knowledge and their application to the environment of decision makers. To be taken in final sixteen hours of graduate program and after all core courses.

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

Prereq: consent of adviser and graduate officer.

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

Prereq: consent of adviser.

0898. Seminar in Industrial Relations. Cr. 4.

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

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

Prereq: consent of adviser.

Marketing (MKT)

Undergraduate Courses

0342. Marketing I — Principles. Cr. 4.

Prereq: ECO 0102. Behavioral characteristics of consumer and industrial markets and intermediate agencies and institutions. Introduction to marketing objectives and programs.

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

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

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

Prereq: consent of chairman.

0532. Business Communications. Cr. 4.

Methods of effective oral and written communications in business.

0533. Business Reports. Cr. 4.

No credit after former Marketing 0652. Principles and practices of business-report writing. Problem identification; report organization; data collection, analysis, and documentation.

0535. Marketing II — Intermediate. Cr. 4.

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

0545. Consumer Behavior. Cr. 4.

Prereq: MKT 0342. Behavioral concepts and theories necessary for an understanding of consumer behavior.

0546. Physical Distribution. Cr. 4.

Prereq: MKT 0342. The functions of transportation and distribution systems from micro and macro approaches. Methods of transportation, spatial arrangements of markets, locations of plants and warehouses, inventory systems, and carrier and physical movement channel selection.

0547. Industrial Marketing. Cr. 4.

Prereq: MKT 0342 or consent of instructor. The nature and scope of industrial marketing.

0548. Market Forecasting. Cr. 4.

Prereq: MKT 0342 and FBE 0540 or equiv. An analysis of the nature and methods of forecasting market activity. The application of forecasting to actual marketing problems. The uses of forecasting in budgeting, sales, prices, inventories and consumer demand. Emphasis on the management viewpoint in planning for profit.

0549. Principles of Advertising. Cr. 4.

Prereq: MKT 0342. Advertising problems of manufacturer and retailer; research, advertising copy, layout, illustration, printing, lithography and engraving; media of advertising; advertising management of departments and agencies; campaign strategy; appropriations.

0581. Channels of Distribution. Cr. 4.

Prereq: MKT 0342. Study of the nature and importance of channels of distribution from theoretical and operational viewpoints. Distribution of consumer and industrial goods with particular reference to retailing and wholesaling.

0585. Promotion Strategy. Cr. 4.

Prereq: MKT 0342. Development of integrated strategies, plans and programs in advertising, personal selling, publicity and promotion, and their implementation in the overall marketing effort.

0590. Social and Political Influences on Business (ACC 0590) (FBE 0590) (MGT 0590). Cr. 4.

The corporation's relationship to the larger community; roles and responsibilities of business and government; contemporary issues.

0603. Marketing Principles and Policies I. Cr. 4.

Prereq: baccalaureate degree or consent of adviser. No credit after Marketing 0342 or equiv. Marketing principles and policies related to consumers, channels of distribution, merchandising, advertising, personal selling and sales promotion, pricing, and marketing research.

0641. Market Research and Analysis. Cr. 4.

Prereq: MKT 0342 and FBE 0540 or equiv. Methods of gathering and analyzing data which will facilitate the identification and solution of marketing problems. Planning the project, data sources, questionnaire construction, and sample design.

0642. Advertising Copy. Cr. 4.

Prereq: MKT 0549 and eight credits in English composition and literature or consent of instructor. Principles of effective advertising copy and application in consumer and industrial advertisements. Exercises in writing, criticizing, testing and revising magazine, newspaper, radio, television, outdoor, and direct mail advertisements.

0644. Sales Management. Cr. 4.

Prereq: MKT 0342. Organization and direction of a sales organization including sales planning and research; sales campaigns; selling methods; compensation, supervision, and control of salesmen.

0646. Public Relations of Business. Cr. 4.

Philosophy of public relations of business, history of public relations, study of public opinion, the public relations process, tools of communication, uses of mass media in public relations work, and analyses of methods employed in establishing sound public relations programs.

0648. Industrial Purchasing. Cr. 4.

Prereq: MKT 0342. Organization and procedure for purchasing. Factors considered in purchasing including quality, quantity, price, delivery, and service. Selection of sources, value analysis, forward buying, budgets, and purchasing performance. Supplemented by case analyses involving various aspects of purchasing.

0650. International Marketing Management. Cr. 4.

Prereq: MKT 0342. Theory and policy of global marketing management through readings, reports and student investigation of actual company situations. Importing and exporting foreign licensing and patenting; international marketing research; product planning; overseas personnel policies; accounting; financing; repatriation of capital; legal, political, cultural and linguistic aspects; international advertising and public relations; organizational factors.

0690. (MGT 0690) Business Policy (ACC 0690) (FBE 0690). Cr. 4.

To be taken as one of last six courses towards bachelor's degree. Policy determination; integration across the functional areas of business.

Graduate Courses

0703. Marketing Management. Cr. 4.

Study of appropriate theoretical models and applications used by a marketing manager. Development of a broad background contributing to the solution of modern management problems.

0740. Marketing Problems. Cr. 4.

Prereq: MKT 0603 or equiv. Application of marketing principles and policies to case studies of individual firms.

0742. Sales Management Problems. Cr. 4.

Prereq: MKT 0603 and consent of adviser. Sales management operations, procedures and policies. Emphasis on the areas in which the sales executive must make policy decisions such as price administration, product planning, organization and management of sales personnel, and marketing planning.

0743. Advertising Policy and Administration. Cr. 4.

Prereq: MKT 0603 or equiv. A critical analysis and evaluation of advertising policy and of the resultant advertising administration. Problem solving experience in most areas of advertising management, advertising organization, determination of basic promotional strategy and advertising allocation, construction and execution of promotional programs, selection of advertising media, and evaluation of advertising performance.

0745. Marketing Research and Methodology. Cr. 4.

Prereq: MKT 0603 or equiv., FBE 0701 and consent of adviser. Management's use and application of modern research in marketing decision making. Important research concepts and research techniques as management tools are stressed, as are areas in which marketing research is most helpful to management.

0747. Theory in Marketing. Cr. 4.

Prereq: MKT 0603 and consent of adviser. Marketing theory from an interdisciplinary point of view. Relevant theories are drawn from such areas as economics, sociology, psychology, and political science in order to develop concepts useful for orientation to and practice of the comprehensive field of marketing.

0790. (MGT 0790) Seminar in Business Policy (ACC 0790) (FBE 0790). Cr. 4.

Capstone course concerned with the integration of organized bodies of business administration knowledge and their application to the environment of decision makers. To be taken in final sixteen hours of graduate program and after all core courses.

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

Prereq: consent of adviser and graduate officer.

0797. Seminar in Marketing. Cr. 4.

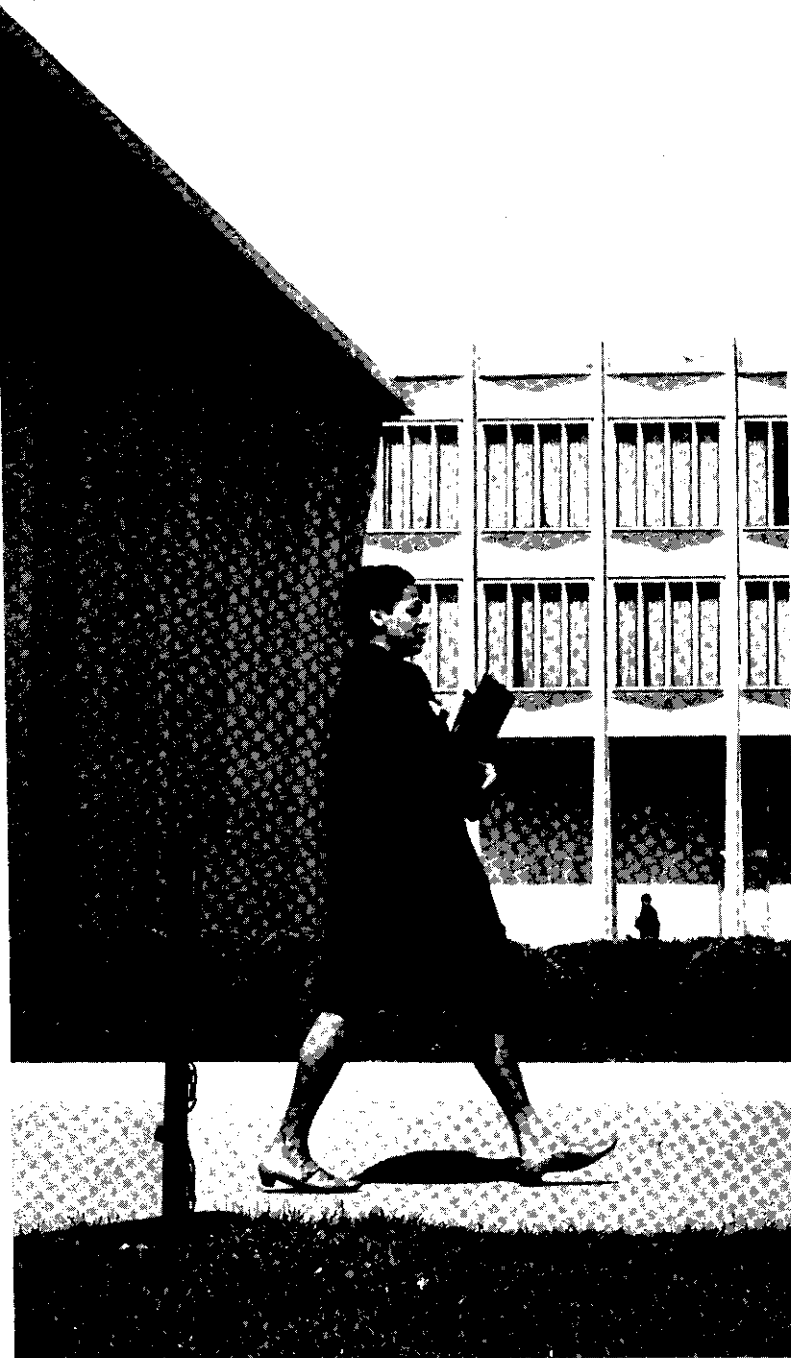
Prereq: thirty-two graduate credits.

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

Prereq: consent of adviser.

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

Prereq: consent of adviser.



College of Education

THE COLLEGE

The College of Education of Wayne State University serves the needs of one of the world's largest metropolitan areas. The complex and ever-changing nature of urban society provides the setting in which this teacher preparation institution exists; therefore, the College reflects the dynamic character of urban life and must necessarily be concerned with a great number of urban problems.

Over the decades we have placed great faith in education as the means by which the human condition can be improved. As society has been altered by such factors as the knowledge explosion, technological advances, and population growth, the purposes and processes of education have changed.

The professional education of teachers is the central concern of the College of Education. The College strives to prepare teachers who have the commitment and competence to enable children and youth to achieve dignity, preserve individuality, develop democratic values, and find self-fulfillment.

Students of teaching have numerous opportunities to participate in the study, research, and analysis of contemporary education problems. A variety of professional education resources is available to students within the University and in the community. Professional laboratory experiences are an important dimension of the program as they bring the prospective teacher face to face with the realities of the classroom, the school and the community.

Assisting the College of Education in its task of preparing teachers are other colleges, schools and divisions within the University, and approximately fifty school districts which provide the settings for a great variety of laboratory experiences at the undergraduate and graduate levels.

To those entering the profession the challenge is great. New technologies of instruction are evolving rapidly and offer the prospective teacher many opportunities for developing a high level of teaching competence. Problems generated in our urban society are extremely complex and those related to education are no exception. Yet the opportunities for curriculum innovation, experimentation, and leadership have never been greater.

SERVICES TO STUDENTS

The College of Liberal Arts advisory staff, second floor, Mackenzie Hall, provides a thorough program of advising for the freshman and sophomore students enrolled in the pre-teaching curriculum prior to their transfer to the College of Education at the beginning of the junior year.

The Student's Adviser — Each student admitted to the College at the undergraduate or graduate level and seeking a degree or a teacher's certificate is assigned to a faculty member who acts as his adviser. The adviser guides the student in the selection of courses and counsels him in solving problems.

College Ombudsman — The College Ombudsman is responsible for hearing College of Education students' complaints,

grievances, problems, and difficulties regarding their relationship with advisers, instructors, and other personnel in the College and the University; and is charged with investigating these situations to see if the problems can be solved.

The present College Ombudsman, Dr. John Pietrofesa, is located in the College of Education Building.

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.

OFFICE OF URBAN EDUCATION

The Office of Urban Education, 441 Education Building, works closely with the College of Education faculty in developing professional educators who are capable of providing children with those experiences which foster meaningful and productive living in an urban setting. This relationship manifests itself at the undergraduate and the graduate levels. Those divisions and units initiating programs through the use of outside funding receive assistance from this office. Community involvement, education and problem solving at various levels are dealt with in this office. Functions of the Office of Urban Education include:

- (1) generating new and innovative ideas to improve education in urban areas;
- (2) working closely with urban school districts in planning, implementing and evaluating pre- and in-service educational programs;
- (3) recommending possible means whereby present resources could be more effectively used in educational programming;
- (4) initiating ways of cooperating with other University divisions, the metropolitan community and other social agencies in the quest for answers to social problems;
- (5) establishing ways through which the evaluative feedback from the field can be internalized to improve the quality of the teacher education program;
- (6) providing a vehicle for receiving input from students as we endeavor to broaden the educational planning base;
- (7) developing programs for the training of educational paraprofessionals;
- (8) broadening the experiential scope of those individuals planning to work in urban educational institutions; and
- (9) providing resources and information to faculty, students, and community residents.

ALUMNI ASSOCIATION

The College of Education Alumni Association (formerly the Detroit Teachers College Alumni Association) was organized in 1893 in connection with the Detroit Normal Training School. In the years since its origin, its membership has continually increased.

The aims of the Association, as set forth in its constitution, are (a) to foster a spirit of loyalty to the College, (b) to raise the standards of the teaching profession, (c) to assist

professionally and financially those who need help, (d) to keep alive the spirit of real fellowship, and (e) to encourage worthwhile contacts between the student body and the Alumni Association. In addition to being supportive of the University and meeting the needs of the membership through appropriate programs, the Association in recent years has addressed itself to ways in which it can be of service to the broader community, recognizing that only through this commitment can it be a viable force in an urban university setting.

The Alumni Association has been generous in its gifts to the College. A gift provided complete furnishings for two rooms in the College of Education building—the Alumni Conference Room, and the Faculty Lounge. The Alumni Association provides scholarships for deserving students, sponsors the Golden Anniversary Tea in honor of fifty-year graduates of the College, joins with the faculty and administration of the College in an annual Alumni-Faculty Day Conference, honors both alumni and faculty with awards and recognition, and supports the work of the Dean and his staff in carrying forward many activities of mutual interest and concern. Annually, the Alumni Association helps to finance the costs of the College of Education-Alumni Headquarter Suites at major conferences.

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.

ACADEMIC INFORMATION

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the College of Education.

NORMAL PROGRAM LOAD

The normal undergraduate student load is sixteen credits per quarter. Only in exceptional cases is a student allowed to elect a heavier program. Approval of the adviser and authorization by the Head of the Division of Academic Services must be secured in those cases where the student petitions to carry more than eighteen credits within a full quarter.

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

If a significant portion of a student's time is spent in outside work, corresponding adjustments must be made in his college schedule. *Undergraduate* students who are working full time may elect a maximum of eight credits with approval of the adviser. A *graduate student* working full-time who desires to carry more than eight credits must secure permission from the Head of the Division of Academic Services, who serves as Graduate Officer.

READMISSION

Following an Interruption in Residence

Undergraduate students whose attendance at Wayne State has been interrupted for three or more years will be required to apply at the College of Education Division of Academic Services for readmission to the College. Deadline dates for such applications are the same as those for regular admission to the University. In instances of prolonged absences of five years or more, it may be necessary to revalidate credit, either through examinations or refresher courses, within the student's major and the professional education sequences.

Graduate students who are returning to work on graduate programs after an absence of one year or more should report to the Central Records Office, room 150, Administrative Services Building, before attempting to register.

ATTENDANCE

Regularity in attendance and performance is necessary for success in college work. *Although there are no officially excused absences as far as College policy is concerned, the conscientious student is expected to explain absences to the instructor.* Such absences may be due to illness; to participation in inter-college activities, certified by the sponsoring faculty member; or other similar types of absence for which the student can present to the instructor evidence that he was engaged in authorized University activities. Each instructor at the beginning of the course will announce his attendance requirements.

PROBATION AND WITHDRAWAL

If, at any time, an *undergraduate* student's scholastic average falls below 2.0, he is automatically placed on probation. If his general average is acceptable but his work in professional courses, especially in student teaching, is unsatisfactory, he may be placed on probation. A student on probation must secure the approval of the Head of the Division of Academic Services before registering for subsequent work in the College. The College reserves the right to ask a student to withdraw at any time from specific courses or from the College entirely, if his progress does not warrant continuance.

GRADUATE PROBATIONARY ADMISSION

An applicant with an honor point average below 2.25 must earn a minimum of twelve quarter hours of advanced level post-degree credit with an h.p.a. of at least 3.0 in order to be recommended for graduate admission. Beginning fall quarter, 1974, course work taken to establish eligibility for admission to graduate study cannot be used toward a graduate degree.

UNDERGRADUATE PROGRAMS

ADMISSION REQUIREMENTS

for Undergraduates

FRESHMEN AND SOPHOMORES

entering with less than two years of college work

All students who enter the University directly from high school, or transfer to Wayne from other colleges with less than eighty quarter hours of credit, are admitted by the University Admissions Office into the College of Liberal Arts or Monteith College, where they pursue a pre-teaching curriculum.

Students intending to prepare for teaching in the fields of art education or physical education with less than eighty quarter hours of credit are admitted directly to the College of Education at the junior college level. Admission for each of these groups is through the University Office of Admissions, 116 Administrative Services Building, 5950 Cass, Detroit, Michigan 48202, telephone 577-3560.

For information regarding application procedures, admission requirements, and fees please refer to the General Information section of this bulletin, beginning on page 7.

SENIOR COLLEGE AND POST-DEGREE STUDENTS

entering with two or more years of college credit

Upon completion of two years of college course work (a minimum of eighty quarter credits) at an accredited institution, students who intend to teach apply to the College of Education for admission to senior college professional work. Applicants who have completed two full years or more of college work in some institution other than Wayne must file transcripts of such work in the College of Education Division of Academic Services — **not** in the University Office of Admissions. Students who intend to receive degrees from other colleges in the University and a teaching certificate from the College of Education must be admitted to the Combined Program through the College of Education Division of Academic Services, 489 Education Building. An application fee of \$10.00 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 University at the junior college level who are considering teacher-education work should take the health examinations.

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, 5900 Second, before applying to the senior College of Education. As a matter of routine, students at the junior college level anticipating teacher education work are strongly urged to avail themselves of the diagnostic services of the Speech Clinic prior to applying to the senior college level. Students whose speech is judged unacceptable for classroom participation during their senior college years will be referred to the Speech Clinic for testing and remediation. Satisfactory verbal communication is a prerequisite for teacher certification.

- 3. Satisfactory Completion of Two Years of College Work** — A minimum of fifty-three semester or eighty quarter credits of work must be completed with an honor point average of 2.0 or above. This work should generally conform to the two years of preprofessional work prescribed by the College for students who expect to prepare for teaching. The quality of work, especially in the major area, must indicate a strong potential for success in a teacher-education program. The honor point average used in considering admissibility to the College is calculated as a gross total representing all institutions attended and all courses attempted.

- 4. Intelligence and General Information** — Examinations designed to measure these factors may be required.

- 5. Specific Prerequisites** or other special requirements of the curriculum area for which the student is applying.

EARLY APPLICATION

Since admission procedures take considerable time, all applicants, whether of junior, senior, or post-degree standing, are urged to present their formal applications for admission to teacher-education work as early as possible, and in all cases, at least *six weeks* before the beginning of any quarter. Application forms are available in the office of the Division of Academic Services, 489 Education Building.

UNDERGRADUATE DEGREES

The College of Education grants the following undergraduate degrees:

BACHELOR OF SCIENCE IN EDUCATION

This degree is granted upon the successful completion of any of the four-year curricula described later in this bulletin. A **minimum of 186 credits of work must be completed with scholarship standing of C or better.** The student must meet all course requirements of his curriculum, including prerequisites and remedial courses if stipulated. The course elections should be distributed to give the student a minimum of sixty credits in general education, three credits in physical education, three credits in hygiene, a minimum of thirty credits in professional education, and a concentration in areas designated as majors or minors.

BACHELOR OF ARTS IN EDUCATION

The requirements for this degree are similar to those for the Bachelor of Science degree, with the exception that the student's work must include sixteen credits in a foreign language. If two or more units of a foreign language are offered for admission, this requirement may be satisfied by completing twelve college credits in the same language beyond the freshman level.

BACHELOR OF SCIENCE IN RECREATION AND PARK SERVICES

This degree is granted only upon successful completion of the Recreation and Park Services program. This is *not* a teaching certification program.

For specific requirements, see page 68 in this bulletin and consult with an adviser in the Division of Health and Physical Education.

TRANSFERRED CREDITS and RESIDENCE REQUIREMENTS

College credits earned in accredited institutions other than Wayne may be transferred by an undergraduate to apply toward meeting requirements for degrees and teaching certificates in the College, provided (1) the student has been accepted as a matriculated student in the College, (2) the grades received in courses where transfer is desired have been satisfactory, and (3) credits so earned will apply to the student's curriculum.

The degree requirement of two semesters or three quarter credits in physical education may be waived for students transferring to the College with two or more years of credit.¹ If such transfer students were required to take physical education but without credit, they may be allowed up to three credits toward graduation from the College.

In general, a maximum of twenty-three credits may be earned by correspondence and extension courses and applied toward an undergraduate degree.

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.

An applicant for a degree from the College must complete at least forty-five credits as a registered student in the College. During the senior year not more than fifteen transferred credits may be accepted. The student must be in residence during the quarter in which he completes requirements for graduation.

When the student has a degree from an accredited institution and is meeting the requirements of the College for a Michigan Provisional Teacher's Certificate, some credits toward the certificate may be accepted by transfer but at least twenty-three credits must be completed at Wayne.²

CHOICE OF CURRICULUM

Before selecting his curriculum, the student should obtain the best information available to him concerning the requirements for success in the different teaching fields and the possibilities of placement. He should, of course, also consider his own interest and inclinations. In the preparation for a considerable number of teaching fields, the actual choice may be deferred until as late as the beginning of the junior year. In other fields, however, it is necessary to begin specialized work in the freshman year. The selection of a curriculum and the election of courses from quarter to quarter are made in relation to the student's professional objective in consultation with an adviser.

Areas of Concentration

DIVISION OF HEALTH AND PHYSICAL EDUCATION

Health Education
Physical Education
Recreation and Park Services³

DIVISION OF LIBRARY SCIENCE⁴

DIVISION OF TEACHER EDUCATION

INTERDISCIPLINARY TEACHER EDUCATION
Art Education
Elementary Education (Nursery School, K-9)
English Education (Secondary)
Foreign Language Education (Secondary)
Mathematics Education (Secondary)
Music Education⁵
Science Education
Social Studies Education (Secondary)
Special Education
Speech Education (Secondary)

VOCATIONAL AND APPLIED ARTS EDUCATION

Business Education
Distributive Education
Family Life Education
Industrial Education

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

³ This is a degree program only and does not lead to teacher certification.

⁴ Refer to page 77 for curriculum information regarding school library preparation at the undergraduate level.

⁵ See College of Liberal Arts section for information.

Combined programs are available in the following curriculum areas in which students complete degree requirements in either the College of Liberal Arts or in Monteith College and the teaching certificate requirements in the College of Education:

COLLEGE OF LIBERAL ARTS AND MONTEITH COLLEGE

- English Education (Secondary)
- Foreign Language Education (Secondary)
- Mathematics Education (Secondary)
- Music Education
- Science Education (Secondary)
- Social Studies Education (Secondary)
- Speech Education (Secondary)

MONTEITH COLLEGE ONLY

- Elementary Education



GRADUATE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 16. 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 designed to provide professional preparation for holders of baccalaureate degrees with suitable teaching majors and minors who seek teacher certification as well as a master's degree. Applicants to M.A.T. programs must be admissible to the Graduate Division and acceptable to the College of Education Division of Teacher Education. All credit applied toward the M.A.T. degree is at the graduate level including the professional education experiences leading to certification. The following M.A.T. programs are presently offered:

- Elementary Education
- English Education (Secondary)
- Mathematics (Junior High)
- Mathematics Education (Secondary)
- Science Education
- Social Studies Education (Secondary)
- Vocational and Applied Arts Education
 - Business Education
 - Distributive Education
 - Family Life Education
 - Industrial Education

Credit Requirements for the various M.A.T. programs range from a minimum of sixty to a maximum of seventy-six credits, depending upon the applicant's background in his teaching field at the bachelor's level and specialized requirements. A professional field experience (student teaching or internship) is an integral part of the M.A.T. programs. Further details regarding M.A.T. programs are available in the College of Education Division of Teacher Education.

MASTER OF ARTS

For majors in school and community psychology, guidance and counseling, recreation and park services, or vocational rehabilitation, consult advisers in these areas.

MASTER OF EDUCATION

Prerequisite — In general, eligibility for a state provisional certificate is essential for admission. Additional prerequisites include a satisfactory background in the area of specialization and the completion of the general undergraduate academic requirements.

Admission — In addition to the completion and filing of an *Application for Graduate Admission* with Graduate Admissions, 102 Administrative Services Building, a personal interview in the chosen area of specialization may be required.

Areas of Concentration

DIVISION OF EDUCATIONAL LEADERSHIP

Educational Leadership
Instructional Technology

DIVISION OF HEALTH AND PHYSICAL EDUCATION

Health Education
Physical Education

DIVISION OF TEACHER EDUCATION

Art Education
Business Education
Distributive Education
Elementary Education
English Education (Secondary)
Family Life Education
Foreign Language Education
Industrial Education
Mathematics Education (Secondary)
Preschool and Parent Education
Reading (Secondary)
Science Education
Social Studies Education (Secondary)
Special Education
Vocational and Applied Arts Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

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

Educational Leadership ELD 7801
Educational Psychology One of the following: TBF 5741, 5745,
5748, 6735, 7733, 7735, or 7738
Educational Sociology TBF 7621 or 7623
Evaluation and Research TBF 7661
Guidance and Counseling TBF 7701
History and Philosophy of Education One of the following: TBF 7601,
7603, 7605, 7608, or 8601, 8607

Cognate — A minimum of eight credits is required in course work outside the specialization and core sequences. The purpose of cognate courses is to provide breadth to the student's master's program.

Plan of Work — After consultation with his adviser, the master's applicant prepares an outline of his program, setting forth the courses completed and to be elected that will satisfy course requirements for the degree.

Candidacy — This advanced status is normally established upon completion of twelve credits by the master's applicant toward degree requirements by filing an approved *Plan of Work* with the College's graduate officer, 489 Education Building. The plan *must* be filed during the quarter in which the applicant completes sixteen graduate credits toward the degree. Failure to file a plan of work will preclude further registration.

In addition to the above general requirements, other requirements may be specified by individual graduate areas listed above. The student should consult the program and requirements of the area in which he plans to specialize.

General Requirements

A **minimum of forty-five credits** is required for this degree under Plans A, B, or C:

Plan A — thirty-three credits of course work plus twelve credits for the terminal seminar and thesis.

Plan B — forty-one credits of course work plus four credits for the terminal seminar and essay.

Plan C — forty-one credits of course work plus four credits for the terminal seminar and project.

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

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

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 forty-five credit program beyond the master's degree. It is a self-contained program, separate from other existing programs, with a distinct form of recognition at its termination. This is a planned program, not merely recognition for forty-five credits of graduate study beyond the master's degree.

Areas of Concentration

DIVISION OF EDUCATIONAL LEADERSHIP

- Elementary Administration and Supervision¹
- Elementary Education Curriculum and Instruction
- General Administration and Supervision¹
- General Secondary Education
- Instructional Technology
- Secondary Administration and Supervision¹
- Special Education

DIVISION OF TEACHER EDUCATION

- Vocational and Applied Arts Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

- Educational Sociology
- Guidance and Counseling
- School and Community Psychology
- Vocational Rehabilitation

Purpose

The purpose of this program is to strengthen the liberal education of teachers and administrators and to make professional workers more effective in their jobs. Its specific content is dependent upon the individual student's needs and interests. The program may include work in:

1. The specialized professional area.
2. The general professional area — the foundations of professional education.
3. The interdepartmental liberal education area.

Program Content and General Requirements

1. All *Plans of Work* are tailor-made to the professional needs of the students.
2. The *Plan of Work* is developed by the student with the help of his adviser.
3. A *Plan of Work* for each student must be approved by the adviser and filed with the Graduate Officer, 489 Education Building, before nine credits have been accumulated following acceptance into the program. A certificate applicant cannot register in additional courses until an approved *Plan of Work* has been submitted and accepted.
4. Research studies, projects, or field studies may be accepted in partial fulfillment of requirements. Such projects will be in the nature of culminating experiences as terminal requirements.
5. Final evaluation requirements will be determined by the area of concentration or by the adviser.

Credit Requirements

1. Requirements for the Education Specialist certificate must be completed within six years after admission into the program.

¹ Full-time residence for one quarter required.

2. A maximum of fifteen quarter credits of graduate post-master's degree work earned at another accredited university, or at Wayne State University, *prior to admission* to the Education Specialist program may be transferred provided the courses are approved by the adviser as appropriate to the program plan.

3. Credit earned beyond the master's degree which is over six years old *at the time of admission* may not be applied toward meeting requirements of the certificate. Credit earned after acceptance as a certificate applicant may not be over six years old at the time the certificate is granted.

4. A maximum of nine quarter credits of graduate post-master's degree work earned at another accredited university *after admission* to the Education Specialist program may be transferred and applied to the program provided no prior transfer credit from another university has been included in the program.

Admission Requirements and Procedures

1. Minimum entrance requirements are:
 - A. A master's degree from an accredited institution.
 - B. Fulfillment of prerequisites required for admission to a Master of Education program of the College of Education, Wayne State University.
 - C. Fulfillment of the special requirements of the area of concentration in which the student wishes to work.
 - D. Some fields of specialization require a minimum of three years of teaching experience or equivalent.
2. Students who have not been previously admitted to the Graduate Division file the *Application for Graduate Admission* with the University Admissions Office, 102 Administrative Services Building. If the minimum entrance requirements are met, students are given the rank of post-master's for one quarter only to enable them to register for course work pending completion of other College or departmental requirements for admission to the Education Specialist program.

Students who hold master's degrees from Wayne State University file applications in 489 Education Building. An application fee is not required from these students.

3. Forms and directions regarding fulfillment of the other College and/or departmental requirements will be forwarded to the student on receipt of the application by the Graduate Education Office. When these requirements have been satisfied, the applicant will be invited to meet with a committee from his chosen area of concentration. Following the interview, the student will be notified of the admission decision by the Graduate Education Office.

Certificate of Recognition

Education Specialist certificates are awarded upon successful completion of all program requirements. Application for the certificate must be made not later than the last day of

registration for the quarter in which the requirements are to be completed.

DOCTOR OF EDUCATION

The doctoral programs of the College of Education at Wayne State are designed to afford opportunity for advanced study and research to persons who have demonstrated: (1) superior scholarship; (2) leadership in education; (3) promise in the field of research; and (4) potential for professional leadership.

Advanced graduate degrees are conferred not merely upon the completion of a prescribed number of courses, nor necessarily after a given period of residence; but rather in recognition of outstanding ability and high attainment in course work, examinations, research, scholarly writing, and personal fitness for education as a profession.

Minimum Entrance Requirements

1. Undergraduate honor point average of 3.0 (B). Applicants with honor point averages of less than 3.0 for the baccalaureate must present evidence of superior academic achievement in a master's program before being considered for acceptance as doctoral applicants.
2. A master's degree from an accredited graduate school.
3. Some fields of concentration require a minimum of three years teaching experience or equivalent.

Admission Procedures

Application — Students who have not been formally admitted to the Graduate Division file initial applications, with the \$15.00 application fee, with the University Admissions Office in the Administrative Services Building. If the minimum entrance requirements are met, students are given the rank of post-master's for one quarter only to enable them to register for course work pending completion of specific admission requirements noted below.

Students who hold master's degrees from Wayne State University file doctoral applications in 489 Education Building. An application fee is not required from these students.

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, will be forwarded by the Graduate Education office, 489 Education Building, upon receipt of doctoral applications.

When all transcripts, test results, recommendations, and other credentials, including the autobiographical statement, have been received and satisfy the prerequisites, the applicant will be invited to meet with a committee from his chosen area of concentration. Following the interview, the student will be notified of the admission decision by the graduate officer.

Areas of Concentration

DIVISION OF EDUCATIONAL LEADERSHIP

Curriculum Development
Elementary Curriculum and Instruction
Leadership in Curriculum
Science Education
Secondary Curriculum and Instruction
Secondary English Education
Secondary Foreign Language Education
Secondary Mathematics Education
Secondary Social Studies Education

Elementary School Administration and Supervision
General Educational Administration and Supervision
Higher Education
Instructional Technology
Secondary School Administration and Supervision
Special Education

DIVISION OF TEACHER EDUCATION

Teacher Education
Vocational and Applied Arts Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

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

COLLEGE TEACHING IN DIVISIONAL AREAS OF GENERAL EDUCATION¹

Humanities
Science
Social Science

Selection of Adviser and Advisory Committee

During the first term in which he is enrolled the student may be advised by the Graduate Officer. He is expected to make arrangements with some member of the graduate faculty to be his regular adviser in time for planning his work for subsequent terms. In the case of a full-time student, arrangements are usually made for the selection of a regular adviser before the time of first enrollment.

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

General Requirements

Minimum Credit Requirements — The minimum credit requirement for the Ed.D. degree is 150 credits in graduate work beyond the baccalaureate degree.

¹ Applications are not being accepted at the present time.

Residence — At least one full year of course work, i.e., forty-five credits of course work beyond the master's degree, must be taken in residence at Wayne State University. This may include work in research techniques, unless taken by examination, but *does not include dissertation research credit*.

Twenty-seven credits in graduate course work, exclusive of directed study and dissertation research, must be completed within one calendar year to meet program residence requirements. This minimum may be exceeded in fields of concentration where faculty find it advisable to do so. The residence requirement must be completed following admission to the Ed.D. program.

In the areas of elementary school, secondary school, and general educational administration and supervision three successive quarters of full-time graduate study, twelve credits each, are necessary to fulfill program residence requirements. Of the twelve credits in each quarter at least eight credits must be in course work other than dissertation research or directed study.

All degree requirements must be completed within seven years from the time of admission as a doctoral applicant.

Basic Ed.D. Program

Doctoral Seminars — Students must elect two doctoral seminars from the following foundation areas: educational leadership, educational psychology, educational sociology, history and philosophy of education. These seminars are open only to doctoral students.

A minimum of sixteen credits is required in course work aimed at developing competence in statistics and research methodologies. At least eight credits of the minimum requirement will consist of a comprehensive course in evaluation and statistics and an advanced course in research methodology and experimental designs. The other eight credits will include research electives appropriate to the needs of the student, department research seminars, internships in research, or any combination thereof.

A minimum of sixteen credits of graduate course work (non-education) taken outside the College of Education is required of all doctoral applicants.

The minimum number of credits required in the field of concentration is thirty-six. The courses constituting the major will be specified by the department in which the student selects the concentration. Course work in the field of concentration is not restricted to courses offered by the College of Education.

A minor in professional education, consisting of a minimum of sixteen credits, is required. Courses included in the minor will be selected by the student and his adviser in conjunction with the minor field committee member. The minor must be selected from the areas of concentration listed on page 59.

The doctoral student is required to submit a dissertation on a topic satisfactory to his doctoral committee. Not less than

twenty-three and no more than thirty credits are required in dissertation research.

A maximum of twenty credits in non-dissertation research may be included in the doctor of education program.

Electives may be chosen from the foundations of education, non-dissertation research techniques, or any course work the applicant and adviser feel is appropriate to the student's individual program.

A plan of work must be filed and approved by the adviser and Graduate Officer during the quarter in which the student is completing twenty-seven credits of work under advisement. Failure to file a plan of work will preclude further registration.

Required Examinations

Final written examinations in the major field of concentration and the minor in professional education will be required. The exact time of these examinations will be determined by the adviser and the student but should not be delayed past the quarter in which all course work is completed. An oral examination may be administered upon the advice of the doctoral committee following the written examinations in the major and minor fields. When performance on a final examination is unsatisfactory, the student may request a re-examination which must be taken within one year of the date of the first examination. The second examination shall be considered final.

A final oral examination on the dissertation is conducted by the student's doctoral committee under the auspices of the Graduate Education Office.

A member of the graduate faculty, outside the College of Education, will serve as moderator. Members of the graduate faculty may attend.

DOCTOR OF PHILOSOPHY IN EDUCATION

The Ph.D. degree is not available in the area of College Teaching in Divisional Areas of General Education. Otherwise, the Doctor of Philosophy embraces the same fields of concentration as the Doctor of Education.

Admission procedures for the Ph.D. program are essentially the same as those for the Ed.D.

Degree Requirements — Of the minimum 135 credits required beyond the bachelor's degree a minimum of forty-five credits in course work must be completed, including at least thirty credits in the major field. Forty-five credits in dissertation research are required in the Ph.D. program. All credit used toward meeting dissertation requirements must be acquired by enrolling in the course designated to carry doctoral dissertation credit for that field of specialization in which the student is enrolled. The remaining forty-five credits will be assigned to research or course work in accord with the needs of the student and the requirements in the field of concentration. At least one minor is required and must be elected outside of the College.

A plan of work, qualifying examinations, foreign language competency examinations and a Final Public Lecture-Presentation are required. Satisfactory completion of the full-time residency requirement must be certified by the adviser and the College graduate officer. Ph.D. applicants are advised to consult the Graduate Division Bulletin for additional information.

Graduation

Graduation deadline dates for the quarter in which candidates are completing degree or education specialist certificate requirements are issued on receipt of the application by the Graduate Education Office.

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



ACADEMIC SERVICES

Office: 489 Education

Head: Howard E. Reilly, Ed.D.

Assistant to the Division Head: Mary Esther, Ed.S.

Undergraduate Programs

Robert Cullinan, M.A., John Flatter, M.S.,
Dolores Stevens, M.Ed.

Graduate Programs

Toni Allen, Christine Dykstra, B.A.

Teacher Certification

Virginia Gay, M.A.

Teacher Placement

Chester McCormick, Ed.D., Paulette Grotrian, M.A.L.S.

PURPOSES

The Academic Services Division is responsible for admitting undergraduate and graduate students to the programs of the College of Education, maintaining all student files, and processing and certifying that graduation and teaching certificate requirements have been met. As the initial contact point for prospective students at all degree levels, the Division provides information and advice concerning various programs offered by the College, admission procedures, teacher certification and degree requirements, and regulations and policies pertaining to the College and the University.

Counselors in the Academic Services Division may act as temporary advisers for students who have not been assigned permanent advisers or who have special needs. In most cases, the counselors act as advisers for in-service teachers working for permanent or continuing certification and for those seeking additional certificate endorsements and conversions.

TEACHER PLACEMENT

In addition to the above services, the Academic Services Division houses the Teacher Placement Office for the College of Education. This unit serves graduates of the College who have completed initial teacher-preparation or advanced graduate programs and in-service teachers enrolled either now or previously in the University. All persons qualifying for teachers' certificates and those completing graduate programs are urged to register with this office.

Close contact is maintained with school systems in Michigan and in other states. Attempts are made to keep informed of current policies on teacher qualification and selection and trends in teacher supply and demand. College and university staff vacancies for professional positions throughout the United States are listed with this office.

The specific functions of the Teacher Placement Office are: to assist registrants in preparing their credentials and in securing teaching positions; to assist school administrators in obtaining qualified teachers for the vacancies they may identify; and to assist in-service teachers and graduates who may wish to advance professionally.

EDUCATIONAL LEADERSHIP

Office: 369 Education

Head: Carroll L. Munshaw, Ed.D.

Professors

Gerald W. Borcourt, Ph.D., John W. Childs, Ph.D., Morrell J. Clute, Ed.D., Ruth E. Ellsworth, Ph.D., Frank J. Estvan, Ph.D., Roland C. Faunce, Ph.D., Warren E. Gauerke, Ph.D., Kenneth S. Goodman, Ed.D., Harlan L. Hagman, Ph.D., Jean F. Hamilton, Ph.D., Larry W. Hillman, Ph.D., William E. Hoth, Ed.D., Wendell M. Hough, Ed.D., Elenora Moore, Ed.D., Lynn N. Nicholas, Ph.D., R. Duane Peterson, Ed.D., Sigurd I. Rislov, Ph.D., Mark H. Smith, Ph.D.

Associate Professors

Roger DeMont, Ed.D., Joella Gipson, Ph.D., Robert Henderhan, Ph.D., Albert F. Stahl, Ed.D.

Assistant Professors

Thomas E. Burford, Ph.D., John M. Gordon, Ph.D., Burnis Hall, Ed.D., Thomas A. Hamil, Ph.D., William P. Sosnowski, Ed.D.

Adjunct Associate Professor

Gerald G. Mansergh, Ph.D.

PURPOSES

The Division of Educational Leadership has as its primary goal the development and enhancement of leadership and technology in educational systems, organizations, and institutions.

It is within the scope of this division to continue to study emergent societal demands and educational innovations; to develop a rationale for supporting educational change; and, to present viable programs of study for advanced students in education which will enable them to function as educational leaders in facilitating change and in conducting on-going programs.

Programs offered under the guidance of this Division include the Master of Education, Doctor of Education and Doctor of Philosophy degrees and the Education Specialist Certificate. See the preceding section for areas of specialization and general degree requirements. For specific program information and requirements students should consult an appropriate divisional adviser.

Instructional Technology

Each degree program in instructional technology is designed to prepare graduates to meet the various levels of requirements for positions ranging from building level to multi-

institutional levels of responsibility in K-12 and higher education as well as training in business and industry. Graduates generally function in one or more of the following categories: instructional-development, media or learning resources consultants or managers, teaching and research.

Educational Leadership

The Master of Education degree in Educational Leadership includes subspecializations in the following areas: reading, early childhood education, alternative education, and special education.¹

Curriculum Development

Curriculum development programs in the Division of Educational Leadership are designed for all people who expect to exert leadership in developing, evaluating, and improving curriculum and instruction in schools in the areas of elementary curriculum and instruction, leadership in curriculum, science education, secondary curriculum and instruction, secondary English and foreign language education, secondary mathematics education, and secondary social studies education. The programs in these fields of concentration within curriculum development serve educators involved in curriculum development, team teaching leaders, program area specialists, learning resource or media center personnel, and supervisors, administrators, and directors of curriculum.

Students are helped to develop leadership knowledge and skills, to generate and use research findings in curriculum and instruction in classrooms, in individual schools and school systems, intermediate school districts, community agencies, and colleges and universities.

General Administration and Supervision

The primary purpose of the general administration and supervision program is to provide for the preparation and growth of those professionals who are currently employed as or are aspiring to central office administrative positions in public and private school systems.

Elementary Administration and Supervision

The program in elementary administration and supervision develops and enhances the leadership skills required for the effective operation of elementary schools and programs. Career goals addressed by the program include but are not limited to: principals, directors, university and college professors, superintendents of research, and roles in state departments of education.

Secondary Administration and Supervision

The program in secondary administration and supervision provides preparation and in-service improvement of secondary

¹ Currently in development. Contact appropriate adviser for specific program information.

schools and secondary school programs: (a) in the function of status leadership in program improvement; (b) in the techniques of effective school administration.

Higher Education

The program in higher education prepares people for positions in college teaching, college administration, and for research in higher education.

Special Education

The program in special education prepares people for positions as special education administrators, directors, supervisors, curriculum resource consultants and specialists, and teacher consultants. The Division of Educational Leadership is responsible for recommending to the Michigan Department of Education non-classroom professional personnel for approval to function in state reimbursed special education programs. Applicants for the degree programs in special education should possess equivalents of full approval in a categorical or specialist area, e.g., school psychology, school social work.

COURSES OF INSTRUCTION¹ (ELD)

5011. (TED 5011) Survey of Educational Systems of Major European Countries. Cr. 4.
See Teacher Education 5011.

5014. (TED 5014) Education Workshop. Cr. 4 (Max. 16).
Must be taken for two consecutive quarters. See Teacher Education 5014.

5018. (TED 5018) Workshop in Intergroup Relations. Cr. 3-9 (Max. 9).
See Teacher Education 5018.

5020. (TED 5020) Laboratory Workshop in Human Interaction. Cr. 3-9 (Max. 9).
Prereq: written consent of instructor. Small, intensive, self-created groups as laboratories in which members learn how their behavior is seen by and affects others; feelings and attitudes that produce behavior; more appropriate behavior and its application outside the laboratory.

5313. (TED 5313) Creative Teaching in the Elementary School. Cr. 4.
See Teacher Education 5313.

5316. (TED 5316) Social Studies Curriculum for Elementary Schools. Cr. 4.
Prereq: TED 4316, teaching experience or consent of instructor. See Teacher Education 5316.

5326. (TED 5326) Survey of Recent Literature for Children (L S 5518). Cr. 4.
See Teacher Education 5326.

5761. Educational Technology (L S 5491) (TED 5761). Cr. 4.
Principles of performance-based instructional decision making applied to the selection, utilization and evaluation of instructional materials and equipment; for large group, small group, independent study and individualized instructional techniques.

5762. Instructional Materials Workshop (TED 5762) (L S 5512). Cr. 2-4 (Max. 4).
Prereq: ELD 5761 or consent of instructor. Design and development of packages of projected and non-projected instructional devices and materials such as film-strips, slide-tape systems, 8mm single concept films, and overhead projector transparencies, audio-tapes and video-tapes.

5765. (L S 5513) School-Library Media Programs. Cr. 4.
See Library Science 5513.

5851. (TBF 5701) Student Personnel Work in Higher Education. Cr. 3.
See Theoretical and Behavioral Foundations 5701.

6010. Field Studies in Education. Cr. 2-12 (Max. 12).
Prereq: consent of adviser or instructor. Supervised professional study in field settings.

6014. Local School Curriculum Planning. Cr. 2-8 (Max. 16).
Prereq: teaching experience and consent of instructor. For teachers, supervisors, and administrators. Consideration of local problems in elementary and secondary school programs. Planning for better teaching and learning. Emphasis on leadership.

6083. Educational Implications of Perception (TBF 6083). Cr. 3-4.
Study of recent formulations in perception with implications for uniqueness, cooperation, specialization, self-concept, freedom, creativity. Emphasis on leadership.

6313. (TED 6313) Remedial Instruction in the Basic School Subjects. Cr. 4.
Prereq: teaching experience. See Teacher Education 6313.

6505. The Middle and Junior High School (TED 6505). Cr. 3-9 (Max. 9).
Modern trends and issues in the curriculum and administration of the junior high school and middle school. Problems of organization, instruction, guidance, orientation.

6526. (TED 6526) Special Problems in Mathematics Education. Cr. 2-6 (Max. 16).
Prereq: teaching experience. Current issues and trends; areas of neglected content; curriculum proposals; related research. Topics to be announced in Schedule of Classes.

6761. Introduction to System Techniques in Educational Planning and Management. Cr. 4.
Prereq: consent of instructor. Identification and application of various systems techniques in educational planning and management.

6762. Workshop in Developing Performance-Based Instruction (TED 6762). Cr. 2-4 (Max. 4).
Prereq: ELD 5761 and 5762 or consent of instructor. Principles of behaviorally planned instruction applied to the design, development, implementation and evaluation of behaviorally based instruction activities and materials.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

6763. Techniques of Individualized Instruction (TED 6763). Cr. 4.
An individually paced course in how to organize and manage individualized instruction.

6764. Computer Research on Problems of Elementary and Secondary Schools (TBF 6764). (3,1). Cr. 4.

Prereq: admission to graduate program. No previous experience in computer programming necessary. Introduction to techniques of using computer in action research projects of teachers and administrators in elementary and secondary schools.

6765. Organization and Management of Learning Resources (L S 6515). Cr. 4.

Prereq: ELD 5761 or 7825 and consent of instructor. Open only to master's candidates in instructional technology, library science, educational administration and supervision. Evaluation and management of learning resources; design, organization and operation of Learning Resource Center facilities.

7015. (TED 7015) Cooperative Planning in the Classroom. Cr. 3-6 (6 required).

Prereq: consent of instructor. Must be taken consecutively for two quarters. Principles and practices. Direct experiences and studies in student-teacher planning; group problem-solving.

7311. (TED 7311) Problems in Early Childhood Education. Cr. 4.

Prereq: teaching experience or consent of instructor. See Teacher Education 7311.

7313. (TED 7313) Issues in Elementary Education. Cr. 4.

Prereq: teaching experience. Emerging trends in curriculum, content and instructional materials and their implications for elementary school teachers and administrators. Review of the current literature and research with direct application to elementary school problems.

7314. (TED 7314) The Linguistics of Reading. Cr. 4.

Prereq: advanced standing, teaching experience. See Teacher Education 7314.

7315. (TED 7315) Teaching and Supervision of Reading in the Elementary School. Cr. 4.

Prereq: teaching experience. See Teacher Education 7315.

7325. (TED 7325) Supervision and Advanced Teaching Studies in Elementary School Mathematics. Cr. 4.

Prereq: teaching experience and a methods course in mathematics. See Teacher Education 7325.

7505. Modern Trends in Secondary Education (TED 7505). Cr. 4.

Critical examination of major administrative and curriculum trends and issues in junior and senior high schools through reading, resource consultants, field work, discussion and lectures.

7508. Student Activities in Secondary Schools (TED 7508). Cr. 4.

Organization, sponsorship, and evaluation of such junior and senior high school activities as homerooms, clubs, speech, athletics, dramatics, student government, music, publications, school camping; examination of student dissent and activism.

7761. Instructional Design (L S 7495). Cr. 4.

Prereq: ELD 7825 or L S 5491 or consent of instructor. Students acquire and practice the rules of instructional design, are videotaped and critiqued employing predesigned instructional moves with related devices and materials with selected students, develop individualized instructional packages representing association, classification and application tasks.

7763. (TBF 7665) Computer Use in Research. (3,1). Cr. 4.

Prereq: TBF 7663. See Theoretical and Behavioral Foundations 7665.

7764. (SPH 0880) Seminar in Computer Assisted Instruction. Cr. 3.

Prereq: consent of instructor. Analysis of computer based instruction as a mass communications medium. Writing, testing, and evaluation of control and command languages in lesson and program preparation using W.R.A.P. and other command languages of computer assisted instruction. Modern mass communications evaluation techniques applied to computer assisted instruction.

7765. Technological Research in Instruction. Cr. 4.

Prereq: ELD 5761 and 7761 or consent of instructor. Developmental and evaluation research proposals, techniques for assessing instructional sequences, methods of large-scale curriculum evaluation and research, instructional packages.

7768. Designing Simulation Systems for Instruction (TED 7768). Cr. 4.

Prereq: consent of instructor. Students acquire and practice the rules of simulation design so as to plan, produce and evaluate a learning game simulation, and a problem resolution simulation; survey and evaluate commercially available simulations.

7781. Curriculum Planning for Alternative Schools. Cr. 4.

Prereq: admission to graduate school. Concepts of curriculum planning; the means to implement programs in alternative schools.

7790. Survey of Mathematics Education in European, Asian and African Countries. Cr. 4.

Prereq: 16 credits in graduate education. Current and projected practices in mathematics education in those countries of Europe, Africa and Asia which have influenced programs in schools in all parts of the world.

7791. Urban Resources for Children in Mathematics Education. Cr. 4.

Prereq: TED 6526 or consent of instructor. Mathematics resources in an urban environment. Field trips, conferences with resource personnel, investigation of curricular materials. Implications and laboratory for urban ecology and urban renewal, and the city as a mathematics educational center.

7801. The Structure of American Education. Cr. 3.

Major organizational, administrative, legal and extra-legal problems affecting public education in the United States.

7802. Leadership in Community Education. Cr. 4.

Prereq: ELD 7801 or consent of instructor. The development, organization, administration, and financing of community education.

7803. Leadership in Educational Administration. Cr. 4.

Prereq: ELD 7801. Principles underlying such areas of administration as education, government, business and social agencies.

7804. Administration of Public School Systems. Cr. 4.

Prereq: ELD 7801. Problems of administrators working with boards of education, staff, community, county, state and federal governments.

7805. Business Administration of School Systems. Cr. 4.

Prereq: ELD 7801. Selected problems in the field of business administration of schools.

7806. Administrative Leadership in School-Community Relations. Cr. 4.

Prereq: ELD 7801. Considerations by school administrators of relationships between the school and the community with special reference to social change, community needs and the total school program.

7807. Introductory Seminar in Educational Administration and Supervision. Cr. 3.

Prereq: admission to education specialist program and recommendation of adviser. Initial experience for majors in general, elementary and secondary school administration and supervision. Experiences in self-appraisal in relationship to the administrative role. Study of theories and practices in educational administration and supervision.

7808. Problems in School Personnel Administration. Cr. 4.

Prereq: ELD 7801. Study of staff, personnel problems.

7809. Humanistic Leadership in Alternative Education. Cr. 4.

Prereq: admission to graduate school. Qualities of humanistic education and the ways in which alternative education approaches develop humanism.

7810. Seminar in Current Economic, Social, and Political Issues Affecting Education. Cr. 3-6.

Prereq: consent of instructor. A study of current social, economic, and political issues as they affect education in an urban area.

7811. Fiscal Problems in Education. Cr. 4.

Prereq: ELD 7801. Fiscal problems of public education at local, state and federal levels.

7813. (TED 7401) Organization and Administration of Educational Programs and Services for the Handicapped and Gifted. Cr. 3.

Prereq: consent of instructor. See Teacher Education 7401.

7814. The Elementary School Principalship. Cr. 4.

Prereq: teaching experience. For experienced teachers and administrators entering the field of elementary school administration. Research findings and sources of information in the field. The principal's role in instructional leadership.

7815. Secondary School Administration. Cr. 4.

Prereq: teaching experience. Organization and administration of middle, junior and senior high schools. Analysis of administrative problems relating to curriculum improvement, staff personnel, guidance, instruction, and school-community relations.

7818. Supervision of Instruction (TED 7818). Cr. 4.

Prereq: teaching experience. Instructional leadership in changing school organizations. Systems theory and curriculum administration. Work of the curriculum coordinator, principal, assistant principal, department heads, consultants, team leader, project coordinator, teacher and other personnel in planning and implementing programs, supervisory techniques for teaching analysis.

7825. Introductory Graduate Seminar in Instructional Technology. Cr. 4.

Prereq: consent of adviser. Students define the field of instructional technology, identify professional journals and organizations associated with the field, define and explore philosophical issues in the field, and select and explore the research foundations of areas in the field of instructional technology.

7826. Research and Directed Study. Cr. 1-4 (Max. 4).

Prereq: written consent of adviser and graduate officer.

7827. Introductory Master's Seminar. Cr. 3-4.

Prereq: admission to master's program in the area of educational leadership. Required for the master's degree. Orientation to the program and assessment of the applicant's competencies. Emphasis on writing, research, discussion, critical thinking. Completion required prior to approval of student's Plan of Work.

7829. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: consent of adviser.

7854. Adult Learning. Cr. 4.

Diagnosing germane adult interests and learning styles. Designing objectives, teaching procedures and materials consistent with those interests and styles.

7855. The Community College. Cr. 4.

Characteristics of community colleges: origins; how they are organized, financed, and controlled; sites, programs, staffs, and students; relation to state and federal governments.

7857. Adult Education in a Changing Society. Cr. 4.

Prereq: consent of adviser. Examination and analysis of adult education practices, trends and issues, and their relationship to a constantly changing society.

7858. Education Programs for the Undereducated Adult. Cr. 4-8.

Prereq: consent of adviser. Exploration of magnitude, distribution, character, causes and consequences of cultural and educational deprivation with special emphasis on basic education.

8012. (TED 8012) Curricular Innovations in Selected Secondary Areas. Cr. 4.

See Teacher Education 8012.

8013. (TED 8013) Basic Principles of Curriculum and Instruction. Cr. 4.

See Teacher Education 8013.

8015. Staff Development Through In-Service Training. Cr. 3-9 (Max. 9).

Current and projected practice that may be effectively employed to establish, maintain and systematically improve the quality of in-service training programs designed to meet specified staff development problems.

8027. Leadership in Curriculum. Cr. 4-16 (12 required).

Open only to students in the doctoral program in leadership in curriculum. Topics to be announced in Schedule of Classes.

8310. (TED 8310) Problems in Reading. Cr. 4.

Prereq: teaching experience and consent of adviser. See Teacher Education 8310.

8313. (TED 8313) Teaching and Supervision of Language Arts. Cr. 4.

Prereq: teaching experience. See Teacher Education 8313.

8316. (TED 8316) Applied Linguistics in Elementary Education. Cr. 4.

Prereq: post-master's status or consent of instructor. See Teacher Education 8316.

8402. (TED 8402) Practicum — Internship in Educating Exceptional Children. Cr. 2-10 (Max. 10).

Prereq: consent of adviser. See Teacher Education 8402.

8407. (TED 8407) Teacher Consultant of Exceptional Children. Cr. 3-4.

Prereq: TED 5403, teaching experience, or consent of adviser. See Teacher Education 8407.

8537. (TED 8537) Advanced Seminar in English Education. Cr. 3-12.

Prereq: consent of instructor. Primarily for students beyond the master's degree. See Teacher Education 8537.

8538. (TED 8538) Research Seminar in English Education. Cr. 4-6.

Prereq: consent of adviser; TBF 7663 or equiv. See Teacher Education 8538.

8564. (TED 8564) Role of Science in General Education: K-12. Cr. 4.

See Teacher Education 8564.

8565. (TED 8565) Recent Research in Curriculum Development and Instruction in Science. Cr. 4.

See Teacher Education 8565.

8574. (TED 8574) Social Studies Program in Grades K-12. Cr. 4.

Prereq: master's degree or consent of instructor. See Teacher Education 8574.

8761. Readings in Instructional Technology. Cr. 4.

Prereq: ELD 7761. Investigation of the latest research studies and theoretical essays in the field to develop and discuss new research thrusts.

8762. Practicum — Instructional Technology. Cr. 4-8 (Max. 8).

Prereq: ELD 7761, consent of adviser and instructor. Offered for S and U grades only. Students design, develop, use, and evaluate instructional systems and subsystems in an educational setting.

8763. Individual Projects in Instructional Technology. Cr. 2-4 (Max. 4).

Prereq: ELD 7761 and consent of instructor. Packages of materials and devices for instructional technology developed through individual design and production.

8780. Development of Alternative Education. Cr. 4.

Prereq: admission to graduate school. Alternatives to conventional schooling through study of open schools, free schools, schools without walls. Skills necessary to implement alternative education.

8792. The Role of the Special Education Curriculum Resource Consultant. Cr. 4.

Prereq: ELD 5761 or ELD 8013. Examination of the role of the curriculum resource consultant in its emergence state-wide and nationally. Identification and development of the required competencies according to individual student needs.

8794. Special Education Leadership Clinic-Workshop: Curriculum and Administration. Cr. 3 (Max. 9).

Prereq: ELD 5761 or ELD 7803 or consent of instructor. Application of systems analysis and operations research techniques to special education curricula and programs. Interrelation of special education, instructional technology, and educational administration for program planning, implementation, and management.

8802. Internship in Educational Administration. Cr. 3-12 (Max. 12).

Prereq: consent of college coordinator of administrative internship programs. Supervised experience in administration of public education. Internship in cooperating school system including seminar.

8803. Seminar in Research and Theory of Educational Administration. Cr. 4.

Prereq: ELD 7804. Research and theory relating to the administration of schools.

8805. Seminar in Simulation of Secondary School Administration. Cr. 4-8.

Prereq: teaching experience. Simulated experiences in the role of a secondary school principal; comparison of alternative responses to identical stimulus conditions; theory and practice of decision making; analysis of aspects of individual administrative style.

8807. Case Studies and Problems in Metropolitan School Administration. Cr. 3-4.

Prereq: ELD 7801, or consent of instructor. Lecture, discussion, field study, seminar. How metropolitan school systems are meeting educational needs in changing urban centers; significant educational developments in Detroit and Flint; trends and practices the organization and administration of metropolitan government.

8808. Planning and Improving School Facilities. Cr. 4.

Prereq: ELD 7801 or consent of instructor. Designed to assist school personnel in writing educational specifications, developing long range building and curriculum programs and improving existing facilities. (F, S)

8809. Field Study in School Plant Planning. Cr. 4.

Prereq: ELD 8808 and consent of instructor. Intensive field work as a member of a staff planning a total building program, a construction project or a school building survey.

8810. Internship in School Plant Planning. Cr. 4.

Prereq: ELD 8808, 8809, and consent of instructor. Internship in a role of major responsibility in a school building survey, a total building program or a construction project.

8811. Workshop in Educational Administration. Cr. 3-12 (Max. 12).

Prereq: ELD 7801. Practicum in the study of current problems affecting education.

8812. The Role of Administrators and Supervisors in Collective Negotiation. Cr. 4.

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

8813. Seminar in Administrative Behavior and Personnel. Cr. 4.

Prereq: ELD 7808. Case studies in administrative behavior and personnel administration.

8814. School Law for Educators. Cr. 4.

Prereq: ELD 7801. Selected legal problems related to the organization and administration of schools.

8817. Culminating Seminar in Educational Administration and Supervision. Cr. 3.

Prereq: completion of major portion of the education specialist program of studies, including the field study. Synthesis of advanced work. Forces influencing administrative and supervisory decision making; implications of alternative decisions with conditions held

constant; concepts affecting the administrator's role; analysis of field project findings.

8820. Field Study. Cr. 2-9 (Max. 9).

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

8826. Research. Cr. 2-9 (Max. 9).

Prereq: written consent of adviser and graduate officer.

8827. Advanced Seminar. Cr. 4-8 (Max. 12).

Prereq: admission to education specialist or doctoral program and consent of adviser. Topics to be announced in Schedule of Classes.

8829. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: consent of adviser.

8853. The American College. Cr. 4.

Prereq: consent of adviser. Types of higher institutions; purposes and programs; institutional life; policies relating to faculty personnel, salaries and retirement; kinds of control and financial support. (For persons preparing for college teaching or college administration.)

8854. History and Philosophy of Higher Education in America (TBF 7607). Cr. 4.

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

8855. (TBF 8705) Advanced Student Personnel Work. Cr. 2-3.

Prereq: ELD 5851 and 7855; TBF 6704 and 7702; consent of instructor. For advanced students in student personnel work. See Theoretical and Behavioral Foundations 8705.

8857. Seminar in Higher Education. Cr. 4.

Examination of the elements basic to a theory of knowledge and a clarification of the conditions to be met in order for higher education research to be a significant contribution to knowledge.

8858. Administration in Higher Education. Cr. 4.

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

9761. Research Seminar and Practicum. Cr. 2-4 (Max. 4).

Prereq: TBF 7663 and 7664 or ELD 8761 or consent of adviser. Students develop a research proposal, critically evaluate each other's research proposals, conduct pilot studies which will lead to more productive research in the field of instructional technology.

9801. Doctoral Seminar in Educational Administration. Cr. 4.

Prereq: formal admission to a doctoral program in education. For doctoral majors in other areas of concentration only. Purposes of education as defined in both federal and state constitutions, statutes and administrative rules; interpretation of policy statements of organizations and commissions.

9821. Research Seminar and Practicum. Cr. 4-8.

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

9826. Research and Directed Study. Cr. 2-6 (Max. 6).

Prereq: written consent of adviser and graduate officer.

9829. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., Max. 30; Ph.D., 45 required)

Prereq: consent of adviser.

HEALTH AND PHYSICAL EDUCATION

Office: 261 Matthaedi

Director: Chalmer G. Hixson, Ed.D.

Professors

Gertrude B. Couch, Ph.D., Joel G. Mason, M.Ed., Laurence E. Russell, M.A., William N. Wasson, Ed.D.

Associate Professors

David L. Blievernicht, Ph.D., Jane C. Fink, M.A., Vernon K. Gale, M.A., Leon A. Lande, Ed.D., Robert J. Lueft, P.E.D., Frank A. McBride, M.S., Frederick A. Mulhauser, Ph.D., Jean A. Stanicek, M.A., Richard A. Swanson, Ph.D., Robert C. White, M.A.

Assistant Professors

Jacqueline A. Dailey, M.S., Istvan Danosi, Masters Diploma, Frank J. Gompert, B.S., David F. Hoover, M.Ed., Avanelle Kidwell, M.A., Alice E. Kildea, M.S., Charles Lewis, M.A., Christ Petrouleas, M.A., Diane C. Pick, D.R., Georgia Reid, M.A., Peter A. Roberts, M.A., John Romas, M.A., Robert T. Samaras, Ed.D., William A. Saville, Ph.D., William W. Sloan, M.A., Ann G. Zirulnik, B.S.

Instructors

Alex Cushnier, M.A., Derwood L. Drobot, M.Ed., Amy B. Ellsworth, M.A., David C. Fiscella, M.A., Eva Jablonowski, B.S., Walter Stasinski, B.S., Thomas R. Vaughn, M.A., Danny R. Watkins, B.S.

PURPOSES

The Division of Health and Physical Education is a separate administrative unit in the University. Degree and certificate programs are under the jurisdiction of the College of Education.

Programs leading to the bachelor's degree and the master's degree in health education and physical education and in recreation and park services are offered under the guidance of the Division of Health and Physical Education. Course patterns for the bachelor's degree in physical education and in recreation and park services are developed in consultation with Division advisers. Students who wish to realize a concentration in dance or a minor in health education at the undergraduate level must plan individual programs with advisers in these particular areas.

Graduate students in physical education may elect to work toward a dance education concentration.

UNDERGRADUATE CURRICULA

PHYSICAL EDUCATION

The undergraduate curriculum in physical education is currently undergoing extensive evaluation and revision. For specific course information, it will be necessary for the interested student to consult an adviser in the Department of Physical Education within the Division of Health and Physical Education.

DANCE EDUCATION CONCENTRATION

A concentration in dance education within the physical education major is offered for undergraduate students who enter college with a broad background in dance experiences, and who wish to teach dance in elementary or secondary school or college.

The undergraduate dance education curriculum is currently undergoing extensive evaluation and revision. For specific course information, it will be necessary for the interested student to consult an adviser in the Department of Dance within the Division of Health and Physical Education.

HEALTH EDUCATION MINOR

A minor in health education for students interested in teaching health on the elementary or secondary school level includes courses in four areas to total thirty-six credits:

	<i>credits</i>
A. Basic Health Sciences	6-9
(Structure and Function of the Human Body in Health and Disease) — Courses in Human Anatomy and Physiology	
B. Health Aspects of Man and His Environment	15-18
(Personal and Community Health; Current Health Issues) — Courses in Health Problems, Drug Education, Nutrition, Human Sexuality, and Mental Health	
C. Behavioral Sciences	6-9
Courses in Psychology and Social Science	
D. Professional Preparation	7-10
(Programs — Methods and Materials — Practicum) Courses in Health Education Methods and Programming, and Practicum or Student Teaching	

RECREATION AND PARK SERVICES

This program leads to a Bachelor of Science in Recreation and Park Services. It is constructed upon a pre-professional base with emphasis upon liberal arts, professional preparation, and in-depth field work. This is not a teaching certificate program.

Conditional Major Status — Students have conditional major status within the curriculum until a minimum of eighty credits are completed. Procedures for registering as a conditional

major may be obtained from the Recreation and Park Services advisers in the Matthaai Building. During conditional status students should complete as many of the following required general courses as possible.

Anthropology 0210	Psychology 0198
Art History 0100	Sociology 0502
or	Speech 0200
Music History Elective	Speech 0312
Economics 0101	Speech 0520
English 0150	Literature Elective
English 0209	Four Physical Education
Health and Physical Education 0283	Activity Electives
Humanities 0201	Science Elective
Philosophy 0201	Science Elective
Political Science 0101	with Laboratory
or	8 credits in Education
Social Science 0191 and 0192	chosen in consultation
or	with major adviser
Sociology 0201	

Regular Major Status — Regular major status is applied for through the College of Education, 489 Education Building, when the student has completed eighty credits. The student then completes the remainder of the required courses listed above in addition to the fifty hour major listed below. Additional courses to complete the 186 credits needed for graduation are chosen as electives in consultation with the student's major adviser. These electives may be used to complete a minor if desired. Satisfactory completion of the English Proficiency Test is required for graduation. An over-all average of 2.0 with a 2.5 average in all Recreation and Park Services courses must be attained.

I. Major Core Courses — Required on all Options

Recreation and Park Services 2261	Recreation and Park Services 4263
Recreation and Park Services 2262	Recreation and Park Services 5260
Recreation and Park Services 3260	Recreation and Park Services 5262
Recreation and Park Services 3262	

II. Major Options — Select One

A. Administration

Recreation and Park Services 4265	Recreation and Park Services 5263
Recreation and Park Services 5261	Management 0362

Twelve hours of electives chosen in consultation with student's major adviser.

B. Program Supervision — Four of following courses:

Recreation and Park Services 3261	Recreation and Park Services 5261
Recreation and Park Services 3263	Recreation and Park Services 5263
Recreation and Park Services 3264	Recreation and Park Services 3241

Twelve to thirteen hours of electives chosen in consultation with student's major adviser.

C. Specialized Program

For the student interested in preparing for a career in parks, therapeutic recreation, or other special area, this option requires twenty-eight credits of electives chosen in consultation with student's major advisor.

GRADUATE DEGREE PROGRAMS

PHYSICAL EDUCATION

Requirements for the degree of Master of Education in physical education include a minimum total of forty-five credits in course work as follows: (1) twenty-seven credits in professional specialization; i.e., courses taken in the division,¹ (2) nine credits in general professional education, and (3) nine credits in cognate work outside the division offerings.

Course offerings within the division may be categorized as follows: (1) foundations, (2) planning and operations of programs, (3) the human organism, and (4) research. While students are encouraged to elect courses from each of these categories, considerable flexibility is provided to meet individual preferences.

DANCE CONCENTRATION

The Master of Education degree in physical education with a concentration in dance education is offered for students who have had a minor or major in dance on the undergraduate level, or have had equivalent dance experience. In addition to nine credits in general professional education, twenty-seven credits are selected in specialized dance or dance-related courses (including research methods and an essay or thesis). The remaining nine credits may be taken in cognate courses. Dance courses are taken from the following offerings:

	<i>credits</i>		<i>credits</i>
Dance 0501	1-3	Dance 6283	3
Dance 0541	3	Dance 6285	3
Dance 0556	3	Dance 6287	3
Dance 0561	1-3	Dance 7285	3
Dance 0590	1-4	Dance 7286	1-4
Dance 6281	3	Dance 7287	3

A member of the graduate faculty in dance is available to assist students in planning a program in this area.

HEALTH EDUCATION

The division now offers a Master of Education degree program in health education. In addition to nine credits in general professional education, twenty-seven credits are selected in specialized health education courses (including research methods and an essay or thesis). The remaining nine credits may be taken in cognate work outside of the division.

For further assistance in planning graduate study in health education, students are advised to seek help from a member of the health education staff.

RECREATION AND PARK SERVICES

This program leads to a Master of Arts in Recreation and Park Services. While the degree can be earned in one year,

¹Included in this credit total is either a four-credit essay or a twelve-credit thesis requirement.

most students plan a two-year program in conjunction with their full-time employment. Application is made through the University Admissions Office. Fifty credits are required for completion of the degree. And undergraduate major or minor in Recreation and Park Services is needed for entry into the Master's degree program. In lieu of this, the student is required to complete twelve credits in recreation and park services courses and an acceptable field-work experience on the undergraduate level as the prerequisite.

Core Courses required of all majors include:

	<i>credits</i>
RP 7261.....Foundations for Community Recreation Leadership...	4
RP 7269.....Terminal Master's Seminar and Essay or Project...	4
or	
RP 8269..... Master's Thesis Research and Seminar	12
RP 8261.....Current Professional Issues	4
RP 8265..... (P E 8255) Research Methods in Physical Education...	4

Master's degree requirements are purposely kept low to allow for diversity of student interests. In addition to the above, the student selects 8-16 credits outside the department of recreation and park services and electives within the department, in consultation with the major adviser, to total the fifty credits required for graduation.

COURSES OF INSTRUCTION¹

NOTE: Admission to professional curriculum and consent of professional adviser is required for admission to all undergraduate professional courses (below Physical Education 6999).

Dance (DNC)

3281. Creative Dance for Children. (1,2). Cr. 2.

Required for dance minors. Varied approaches to creative dance experiences for children stressing the development of aesthetic and kinesthetic awareness.

3283. (P E 3245) Theory and Practice of Elementary Dance Forms. Cr. 3.

Prereq: P E 3241 or equiv. Instructional materials in dance movement exploration, rhythmic skills, traditional dance steps, and in the recreational forms of folk dance with application to the school dance program.

4281. Theory and Practice of Contemporary Dance. Cr. 3.

Prereq: DNC 0101 or equiv. Analysis of techniques and development of instructional materials in contemporary dance, including appropriate movement and rhythmic techniques and beginning dance composition.

5281. Practicum in Dance Education. (2,2). Cr. 3.

No credit for majors.

Prereq: directed or regular teaching. Developmental and creative dance experiences related to the elementary school curriculum with emphasis on cognitive and aesthetic concepts.

6281. Problems in Teaching Creative Dance. Cr. 3.

The development of creativity in dance teaching in the presenting of dance techniques, movement and rhythmic problems, improvisational catalyst, short dance studies.

6283. Historical Foundations of Dance. Cr. 3.

Evolution of dance from primitive times to early twentieth century art dance. Historical analysis of folk rituals, court and theatrical dance. Social influences on dance as an art.

6285. Seminar in Dance Techniques. (0,6). Cr. 3.

Prereq: consent of instructor. Investigation and practice of the techniques of classical ballet and modern dance; their similarities and differences; construction of technical sequences for specific body disciplinary needs.

6287. Dance Performance and Production. (2,2). Cr. 3.

Consideration of details of various types of dance production and performance; purpose, content, technical aspects, organization and management.

7285. Laboratory in Choreography. (1,4-6). Cr. 3.

Prereq: undergraduate major or minor in dance or consent of instructor. Choreography of solo, small and large group compositions for critical evaluation.

7286. Directed Study in Dance. Cr. 1-4 (Max. 4).

Prereq: consent of adviser and graduate officer. Open only to dance concentrate students.

7287. Dance Ethnology. Cr. 3.

The study of the functional significance of communal dance in society; its religious symbolism and social purpose; its function as a source in the development of the dance-art of a culture.

Driver Education (D E)

5273. Teaching Driver Education and Traffic Safety (TED 5094). (3,1). Cr. 4.

Prereq: valid Michigan driver's license. Teacher preparation to organize and teach driver education and traffic safety.

5274. Problems in Driver Education and Traffic Safety (TED 5074). (3,1). Cr. 4.

Prereq: D E 5273. Issues and concerns in professional preparation to meet traffic safety needs of schools and communities.

5275. Seminar in Driver Education and Traffic Safety (TED 5075). (3,1). Cr. 4.

Prereq: D E 5274. Behavioral, administrative and professional aspects of the teaching role in driver and traffic safety education.

Health Education (H E)

3234. Health Care of the Pre-School Child. Cr. 4.

Prereq: TBF 3731 or consent of adviser. Conditions and practices which protect and promote healthy growth in the young child; such factors as environmental sanitation, preventive health practices, care in case of illness or injury, meeting emotional health needs, and early sex education.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

3236. Individual Problems in Health Education. Cr. 1-4 (Max. 4).
Prereq: professional courses in health education or consent of adviser. Solving some specific problem under guidance of the divisional staff.

4230. Health of the School Child. Cr. 3.
Prereq: HEA 0281 or consent of instructor. Health status and problems of youth at various stages of growth and development. Emphasis on the teacher's role in health protection and promotion.

4231. The School Health Program. Cr. 3.
Prereq: HE 4230. Principles underlying the organization of school health programs. Teacher's responsibility in healthful school living and health services.

4233. Methods in Health Instruction. Cr. 3.
Prereq: HE 4231. Principles and techniques in teaching health at elementary, junior and senior high levels.

5230. Role of the Teacher in School Health. Cr. 3.
Not open to professional students in health and physical education. Role of the teacher in meeting school and community health problems of the school population. Environmental health factors, teacher appraisal of pupil health, health services, direct and integrated health instruction.

5231. Curriculum in Health Instruction. Cr. 3.
Prereq: HE 4233 or consent of instructor. Curriculum reforms in health education; emphasis on conceptual approach and its applications in unit construction and course design, K-12.

5233. Health Problems of Children and Youth. Cr. 3.
Recent authoritative information on diseases and defects of school age children. Implications for the school program in health. Lecturers from medicine and public health when possible.

5235. Workshop in School Health. Cr. 3-6.
Prereq: teaching experience. Lectures, discussion groups, individual counseling. Structured around problems of students in course. Plans for improving health programs in schools represented by students in course.

5236. Methods and Materials of Instruction — Safety Education (TED 5093). Cr. 3.
Objectives of safety education as applied to home, public, traffic, occupations, and fire prevention. Materials, instructional methods, teaching aids, community agencies. Field trips.

5237. Health as a Philosophical Problem. Cr. 3.
Prereq: senior or graduate standing. An in-depth study of philosophical problems that are logically prior to intelligent professional consideration of health values and medical and scientific information.

5238. The Drug Experience: Awareness for Decision Making. Cr. 4.
Prereq: senior or graduate standing. Factual information about drugs and their relation to society; medical and pharmaceutical aspects of drugs; adolescent drug abuse, communication skills and self-awareness, drug programs; school community problems, and community service programs.

6233. History and Philosophy of Health Education. Cr. 3.
Prereq: HE 4230, 4231, 4233, or equiv. Major trends in health education in the United States from 1850 to the present; social and scientific factors significant in the development of school health education.

7231. Current Issues in Health Instruction. Cr. 3.
Prereq: HE 5231 or consent of instructor. Recent research in identification of needs, problems, curriculum construction, new methodological approaches and evaluative techniques.

7233. Administration of School Health Programs. Cr. 3.
Prereq: teaching experience. Role of school administrators in coordinating the school health program with the home, health department, and other community health agencies. Leadership responsibilities of the administrator as related to staff and Board of Education.

7236. Directed Study in Health Education. Cr. 1-4 (Max. 4).
Prereq: consent of adviser and graduate officer.

7239. Terminal Master's Seminar and Essay or Project. Cr. 4.
Prereq: consent of adviser. Development and review of essay outlines. Graduate students present proposed studies for analysis by faculty and students in seminar.

8235. (P E 8255) Research Methods in Physical Education, Health Education, and Recreation and Park Services (R P 8265). Cr. 4.
Prereq: course in elementary statistics. Open only to health education majors. Research literature. Development of research designs. Solving research problems.

8239. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).
Prereq: consent of adviser.

Health (HEA)

5234. Prevention and Care of Athletic Injuries. Cr. 3-4.
Prereq: HEA 0288, and 0387 or equiv. The training room, its purpose, equipment, and management. Principles and techniques of treating sprains, knee, muscle and other injuries of the locomotion system and of the skin. Application of heat, light, diathermy, water; massage and special exercises. Bandaging, first aid procedure; training table; observation and directed experiences.

6234. Human Physical Growth. Cr. 3.
Prereq: HEA 0288, 0289 or equiv. Meaning of growth and development and their measurement; mean and differential growth patterns; theoretical curves; constitutional types and their relation to health, disease and personality; effect of hereditary and environmental factors on growth; minimal and optimal requirements for good growth.

6235. The Nation's Health. Cr. 3.
Prereq: HEA 0281, 0282 or equiv. Survey of the health status; factors aiding and deterring improvement of health conditions; technological and economic advances; ecology of human disease. Analysis of provisions and newest proposals for meeting basic health needs including medical care, insurance, health resources, and medical ethics.

7234. Bases for Physiological Hygiene. Cr. 3.
Prereq: courses in chemistry, physiology, or biology. Nature of health; laws of nature applying to the development and maintenance of health states; essentials for good health; internal, hereditary, somatic and sociological factors influencing health states. Principles of prevention and their application.

Physical Education (P E)

1241. The Study of Human Movement. Cr. 3.

Open to physical education majors only. Experiences in major areas of the study of movement; i.e., philosophy and aesthetics of movement, science of movement, evaluation of movement and movement professions.

2241. Theory and Practice of Individual Sports — Women. (1,4). Cr. 3.

Prereq: P E 0126 and 0137 or equiv. Analysis of skills and participation in badminton, golf, and tennis. Instructional methods and teaching aids applied to girls' and women's programs.

2242. Theory and Practice of Individual Sports — Men. (1,4). Cr. 3.

Prereq: P E 0126 and 0137. Analysis and participation in individual and dual sports. Study of instructional methods and teaching aids applied to golf, tennis, badminton, and bowling.

2244. Theory and Practice of Selected Activities — Men. (1,4). Cr. 3.

Prereq: P E 0145 and 0153. Analysis and practice of combative and developmental activities in physical education. Study of instructional methods and teaching aids applied to wrestling, gymnastics, weight training, and conditioning activities.

2245. Theory and Practice of Team Sports I — Women. (1,4). Cr. 3.

Prereq: P E 0171. Analysis of skills and participation in soccer, speedball, and field hockey. Instructional methods and teaching aids applied to girls' and women's programs.

2246. Theory and Practice of Team Sports II — Women. (1,4). Cr. 3.

Prereq: P E 0172 and 0174. Analysis of skills and participation in volleyball and basketball. Instructional methods and teaching aids applied to girls' and women's programs.

2247. Theory and Practice of Basketball and Football. (1,4). Cr. 3.

Analysis and participation in the skills and game patterns of basketball and football. Study of instructional methods and teaching aids applied.

2248. Theory and Practice of Team Sports III — Women. (1,4). Cr. 3.

Analysis of skills and participation in softball and track and field. Instructional methods and teaching aids applied to girls' and women's programs.

2249. Theory and Practice of Baseball and Volleyball. (1,4). Cr. 3.

Prereq: P E 0179. Analysis and practice of fundamental skills and techniques of baseball and volleyball. Study of instructional methods and teaching aids applied.

2250. Theory and Practice of Soccer and Track. (1,4). Cr. 3.

Prereq: P E 0176. Analysis and practice of fundamental skills and techniques of soccer and track. Instructional methods and teaching aids.

2252. Officiating Baseball. (1,2). Cr. 2.

Prereq: playing experience in baseball. Development of competence in umpiring baseball; skills, rules, personal preparation, umpiring in schools and colleges; organizations of umpires; supplementary officials; opportunity for certification.

2253. Officiating Basketball. (1,2). Cr. 2.

Prereq: playing experience in basketball. Development of competence in officiating basketball; skills, mechanics, signals, rules and interpretations, personal preparation, officials associations, supplementary officials; opportunity for certification.

2254. Officiating Football. (1,2). Cr. 2.

Prereq: playing experience in football. Development of competence in officiating football; skills, mechanics, signals, rules and interpretations, personal preparation, officials associations, supplementary officials; opportunity for certification.

3241. Basic Movement Experiences. Cr. 3.

Prereq: junior or senior standing. Problem-solving approach to helping the child understand and control the many ways his body moves. Designed to help teachers analyze and use basic movement as a foundation for teaching sports, dance and gymnastic skills.

3242. Student Teaching and Seminar. Cr. 3-8.

Prereq: admission to student teaching. Offered for S and U grades only.

3243. Theory and Practice of Elementary Physical Education Activities. Cr. 3.

Prereq: P E 3241. Primary and intermediate grade activities for children. Emphasis on the exploratory and problem-solving approach to learning. Use of basic movement, games, relays, stunts, self-testing, and physical fitness activities.

3244. Theory and Practice of Aquatics. (1,4). Cr. 3.

Prereq: P E 0120 or life-saving certificate. Instructional methods and techniques in aquatics, water safety and survival; swimming program development; pool and waterfront administration and management; leads to water safety instructor's certificate.

3245. Theory and Practice of Elementary Dance Forms (DNC 3283). Cr. 3.

Prereq: P E 3241 or equiv. Instructional materials in dance movement exploration, rhythmic skills, traditional dance steps, and in the recreational forms of folk dance with application to the school dance program.

3250. Educational Methods in Physical Education. Cr. 4.

Basic approaches to teaching and learning in physical education. Curriculum development, instructional planning, teaching aids, materials for school programs.

3256. Individual Problems in Physical Education. Cr. 1-4 (Max. 4).

Prereq: consent of adviser. Solving a specific problem under guidance of the divisional staff.

4242. Student Teaching and Seminar. Cr. 3-8.

Prereq: P E 3242. Offered for S and U grades only.

4244. Officiating Women's Team Sports. Cr. 1-2.

Prereq: consent of instructor. Practical and theoretical techniques of officiating hockey and basketball leading to ratings given by U. S. Field Hockey Association and D.G.W.S. Officiating Services Area. Officiating experiences at various age and skill levels.

4251. Coaching Methods in Swimming. Cr. 2.

Prereq: P E 3244. Coaching of competitive swimming and diving: team training and practice, management and officiating of meets, coaching methods for specific events.

4253. Coaching Women's Team Sports. Cr. 2.

Prereq: P E 2245, 2246 or consent of instructor. Practical and theoretical techniques of hockey and basketball. Teaching advanced skills and strategies, methods of team selection and management, planning practices and schedules.

4254. Coaching Women's Individual Sports. Cr. 2.

Prereq: P E 2241 or consent of instructor. Techniques, advanced tactics and strategy for the skilled player in selected individual sports.

4255. Coaching Methods in Baseball. Cr. 2.

Team preparation for baseball competition. Practice methods, game strategy, rule interpretation, advanced techniques of competitive play studied.

4257. Coaching Methods in Basketball. Cr. 2.

Offensive and defensive patterns in basketball. Focus on game strategy and team preparation. Practice procedures, scouting approaches, training methods.

4258. Coaching Methods in Football. Cr. 2.

Offensive and defensive patterns in football. Focus on game strategy and team preparation. Practice drills, scouting approaches, training methods.

4259. Coaching Methods in Track and Field. Cr. 2.

Basic approaches to preparation of competitors in specific track and field events. Scientific training methods, planning practices and meets, advanced techniques of performance.

5250. Evaluation and Measurement in Health and Physical Education. Cr. 4.

Prereq: senior standing. Elementary statistical methods and evaluative techniques applied to health and physical education. Test construction and standard measurement approaches.

5251. Corrective-Adaptive Physical Education. Cr. 4.

Prereq: basic courses in anatomy, physiology, and kinesiology. Program development for the atypical in physical education. Approaches employed in adapting motor activities to specific handicaps and disabilities.

5253. Administration of Physical Education. Cr. 4.

Analysis of administrative responsibility in physical education: policy, development and procedural patterns in staff relations, program organization, financial management.

5254. Principles of Physical Education. Cr. 4.

Prereq: student teaching. Application of philosophical methods of analysis to non-empirical questions and problems of specific concern to the physical educator. Consideration of purpose, meaning, rules, principles and change.

5255. Movement Education for Children. Cr. 4.

Designed for kindergarten and elementary classroom teachers. Principles, values, theory, and content of movement education for children. Problem-solving approach to movement education as a foundation for specialized experiences in game patterns, stunts, self-testing activities, and creative dance movement.

5256. Honors Projects. Cr. 2-4 (Max. 4).

Prereq: senior standing and consent of adviser. Open to students of high scholastic standing for individual study and advanced seminar work.

5258. History of American Physical Education. Cr. 3.

Prereq: senior standing or consent of instructor. The growth and development of physical education in American education.

5259. Sport in American Life: Colonial to Present. Cr. 4.

The role of sport in socio-cultural history of the United States.

6245. Practicum in Movement Education. (2,2). Cr. 3.

Prereq: elementary school physical education teaching experience. No credit after Physical Education 3241. A problem-solving approach to teaching the basic movement skills of games, dance, gymnastics in an elementary school physical education program.

6251. History of Physical Education. Cr. 4.

The examination of physical education as a significant cultural form from early civilizations to the present.

6254. Workshop in Physical Education and Athletics. Cr. 2-8 (Max. 8).

Teachers, school administrators and consultants working cooperatively on current problems in the field of physical education and athletics.

6255. Organization and Administration of Athletics. Cr. 3.

Prereq: undergraduate major in physical and health education. Problems related to the administrative duties of athletic directors including equipment, scheduling, team morale, trips, public relations.

6257. Psychology of Sport. Cr. 4.

Prereq: introductory psychology course. Motivation, arousal, personality, theories of learning as they relate to the sport performance.

7251. Foundations of Physical Education. Cr. 3.

Analysis of the role of physical education and its relationship to human well-being. Meaning and influence of motor movement in human existence.

7253. Movement Aesthetics. Cr. 3.

Human movement as it relates to aesthetic experience. Design and expression in varied forms of physical activity. Pertinent literature in the field.

7254. Supervision and Administration of Physical Education. Cr. 3.

Policies and procedures in planning school programs of physical education. Organizational patterns and problems at community and educational levels. National and state responsibilities.

7255. Curriculum Planning in Physical Education. Cr. 3.

Principles of curriculum design and their application to programs of physical education; current questions and issues in curriculum research.

7256. Directed Study in Physical Education. Cr. 1-4 (Max. 4).

Prereq: consent of adviser and graduate officer.

7258. Mechanical Analysis of Motor Activity. Cr. 3.

Prereq: basic course in kinesiology. Principles of the analysis of human movement. Application of the laws of mechanics to motor activity. Scientific methods of analyzing human motion.

7259. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: consent of adviser. Development and review of essay outlines. Graduate students present proposed studies for analysis by faculty and students in seminar.

8241. Critical Issues in Physical Education. Cr. 3.

Prereq: undergrad. major in health or physical education. Examination of current concerns in physical education. Analysis of the philosophical bases of these issues, significance of their meanings, and implications for the profession.

8243. Sport in Society. Cr. 4.

Prereq: introductory sociology course. The investigation of sport as a significant social institution. Comparative analysis of the place of sport in selected societal settings.

8244. Dimensions of the Sport Experience. Cr. 4.

The analysis of sport as a meaningful social form in which the experience of participation facilitates the realization, development, clarification and understanding of one's own existence.

8251. Rehabilitation Through Physical Education. Cr. 3.

Prereq: P E 5251 or consent of instructor. Uses of exercise for rehabilitative purposes. Movement as a therapeutic medium for physical and emotional disability.

8253. Motor Learning. Cr. 3.

Prereq: P E 8255. Principles of motor learning. Review of research findings in the physical performance field. Application to the teaching and learning of motor skills.

8255. Research Methods in Physical Education, Health Education, and Recreation and Park Services (R P 8265) (H E 8235). Cr. 4.

Prereq: course in elementary statistics. Open only to Physical Education majors. Research literature. Development of research designs. Solving research problems.

8256. Experimental Physiology. Cr. 4.

Prereq: basic courses in human anatomy and physiology, exercise physiology and P E 8255. Research methods. Development of experimental designs and controls in physiological research.

8258. Seminar in Professional Literature. Cr. 2-6.

Prereq: three graduate courses in physical education. Examination of the literature on specific topics within the Physical Education profession.

8259. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: consent of adviser.

Recreation and Park Services (R P)

2261. Nature and Scope of Recreation and Park Services. Cr. 1. Historical developments; survey of professional opportunities and educational requirements.

2262. Field Work I. Cr. 3.

Prereq: one month advance consent of instructor. Supervised observation and limited volunteer leadership in an assigned recreation-park agency.

3260. Principles of Recreation Leadership. Cr. 4.

Theories and dynamics of individual and group leadership in recreation services; techniques for working with children, adults, and special groups (handicapped, aging).

3261. Social Recreation Programming. Cr. 4.

Theory, techniques and practice in planning and conducting social activities for children and adults with emphasis on social development and the integration of the individual into the group. Field programming and leadership assignments.

3262. Field Work II. Cr. 3.

Prereq: R P 2262 and one month advance consent of adviser. Open only to majors. Supervised volunteer leadership in an assigned recreation-park agency where the type of programming differs from the student's previous experience.

3263. Playground, Playfield, and Neighborhood Park Leadership. Cr. 4.

Types and functions of playgrounds, playfields and neighborhood parks; leadership responsibilities for program, control, safety and maintenance; trends in facility and equipment design and supplies. Playground games, arts and crafts, story telling.

3264. Camp Leadership. Cr. 4.

Values and objectives of organized camps; understanding campers; program planning, staff responsibilities, records and evaluation; safety; campcraft skills. Opportunity to earn A.C.A. certification. Weekend trip required.

4261. Recreational Sports. Cr. 4.

General concept of the rules and procedures of various recreational sports and activities. Ordering equipment, setting up and maintaining playing areas, organizing tournaments, and supervising officials.

4262. Terminal Internship and Seminar. Cr. 8-16 (16 required).

Prereq: one month advance consent of adviser. Open only to recreation and park services majors. Full-time placement in a selected public, private or specialized agency (hospital, industry), to meet the student's professional goal. Joint supervision by agency and instructor; concurrent on-campus seminar considering problems related to internship. Includes on-the-job rotation among all departmental operations.

4263. Philosophy of Recreation and Park Services. Cr. 4.

Open only to recreation and park services majors. Nature of the recreative experience and its importance to the individual. Influence of leisure on the individual and society; importance of education for leisure; development of the profession — The National Recreation and Park Association; the recreation worker as a professional.

4265. Public Municipal Recreation and Park Administration. Cr. 4.

Prereq: 12 credits in recreation and park services or consent of instructor. Administration of public recreation and park systems at municipal district, county, regional, state and federal levels, with emphasis on the municipal. Departmental structures; budget and finance; legal considerations; personnel training and evaluation; records and reports; public relations.

5260. Principles of Recreation Programming. Cr. 3-4.

Open only to recreation and park services majors. Objectives, trends and patterns. Techniques for achieving balanced services and for special groups; emphasis on metropolitan areas.

5261. Facility Management in Recreation and Parks. Cr. 4.

Land and building maintenance programs; equipment and supplies; control and records; maintenance personnel training; field inspections.

5262. Advanced Field Work in Recreation and Park Services. Cr. 1-8 (Max. 24).

Prereq: one month advance consent of instructor. Specialized leadership in an assigned recreation-park setting.

5263. Public Relations in Recreation and Park Services. Cr. 4.

Prereq: R P 4263 or consent of instructor. Various means for communication among recreation agencies and with the public; techniques of public relations; motivating program participation; audio-visual and graphics workshop.

5264. Leadership in Recreation Services for the Aging. Cr. 4.

Prereq: R P 3260 and 4263, or consent of instructor. Leadership techniques for personnel within public and private recreation and park agencies who work with the able and mildly disabled aged. Methods in communicating program availability and stimulating participation.

5265. Camp Administration. Cr. 4.

Values and objectives of organized camps; site layouts, facilities; direction, budget, records, insurance, sanitation and safety, program construction, camper and staff recruitment; staff training; parent-camp relations.

5266. Independent Study. Cr. 1-2 (Max. 12).

Prereq: 12 credits in recreation and park services and consent of instructor. Supervised research, applied or action, in the student's area of concentration or interest.

5267. Therapeutic Recreation. Cr. 4.

Introduction, scope and rationale of therapeutic recreation. Examination of various types of persons needing special recreation programs. Programming for individuals and groups.

5268. Wilderness Leadership. Cr. 3-4.

Prereq: basic course in first aid. Equipment, skills, preparation for trips. Leadership of groups in wilderness settings.

6267. Outdoor Recreation. Cr. 4.

Meaning, significance, historical background, facilities, agencies, and programs at the federal, state and local levels. Organizations and future projections.

6268. Community Education and Recreation Services. Cr. 4.

Examine the role of leisure in relation to education and, in particular, the place of school-sponsored recreation services; their relation to current trends in community education.

7261. Foundations for Community Recreation Leadership. Cr. 4.

Critical considerations concerning work, monotony, boredom, entertainment. Responsibilities of recreation and park service personnel for motivating individual awareness of and participation in worthwhile use of leisure.

7263. Landscape Design for Recreation Areas. (3,2). Cr. 4

No credit after former Recreation and Park Services 7267. Fundamentals of landscape design emphasizing park planning in the urban setting. Philosophy of contemporary design. Site analysis and dissemination of data, systematic approach to solving design problems, balance of function and aesthetics, elementary studio design projects and field inspections.

7264. Advanced Recreation Area Planning. (3,2). Cr. 4.

Prereq: R P 7263. Continuation of Recreation and Park Services 7263 with additional technical data for developing skills in urban park planning. Graphic expression and plan preparation. Facility-

space relationships, topographic model construction, complex design, and field-trip inspections.

7265. Planning Recreation Facilities. Cr. 4.

Land acquisition and construction responsibilities of the recreation and park administrator. Facility layout and design to serve multi-functional, maintenance, and aesthetic objectives. Field inspections.

7268. Public Municipal Recreation and Parks Finance. Cr. 4.

Departmental structures, budget process, income sources. Leadership recruitment and training programs; liability and immunity in recreation and park services; debt management; public and foundation grants.

7269. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: consent of adviser.

8261. Current Professional Issues. Cr. 4.

Prereq: R P 7261 or consent of instructor. Open only to recreation and park services majors. Identification, analysis, and attempted solutions to current problems, challenges and issues facing the profession of recreation and park services. Seminar and research assignments.

8265. (P E 8255) Research Methods in Physical Education, Health Education, and Recreation and Park Services (H E 8235). Cr. 4.

Prereq: course in elementary statistics. Open only to majors. Research literature. Development of research designs. Solving research problems.

8269. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: consent of adviser.

LIBRARY SCIENCE

Office: 315 Kresge Library

Head: Robert E. Booth, Ph.D.

Professors

Genevieve Casey, M.A., Margaret Grazier, M.A.

Associate Professor

Miriam Larson, M.S.

Assistant Professors

Michael Keresztesi, M.A., Betty Maurstad, Ph.D., Edith B. Philips, M.A.

PURPOSES

The purposes of the Division of Library Science are to enable graduates to perform effectively as public librarians, as school librarians, as college and university librarians, and as special librarians, but above all as librarians who have achieved some understanding and appreciation of the nature and the function of the library for the organization and communication of the recorded ideas, knowledge, and information of mankind.

Such performance, we believe, calls for awareness of the role of the library in the social framework in which it exists — whether school, college, university, business, scientific or cultural enterprise, community, state, nation, or world. It calls for a sense of the interdependence of all the social institutions and of the inter-relatedness of their community needs. It calls for an understanding of the principles and methods of selecting, acquiring, storing, organizing, evaluating, interpreting, and using the recorded information of mankind regardless of the format in which it appears. It calls for the ability to apply these principles and methods with the varying requirements of specific library situations.

The Division offers programs at the undergraduate and master's degree levels. The Division is a member of the Association of American Library Schools, and the Master of Science in Library Science program is accredited by the American Library Association. The course in medical librarianship is accredited by the Medical Library Association.

GRADUATE PROGRAM

MASTER OF SCIENCE

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

This is a professional library science degree accredited by the American Library Association and is designed for public, academic, special, or school librarianship.

Admission

The applicant must present evidence of satisfactory undergraduate preparation for his field of specialization and must meet all requirements of the Division of Graduate Studies and be accepted for study toward the graduate professional degree by the graduate staff of the Division of Library Science. Prerequisites include a B.A. or B.S. degree with undergraduate courses so distributed as to give the student a *minimum* of 100 credits of general education. A reading knowledge of a modern foreign language is recommended for students planning to work in libraries with an emphasis on research and adult services.

Degree Requirements

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

The Professional Core

(25-29 credits)

	<i>credits</i>
LS 5497 Introduction to Librarianship (All students must take this as their first graduate Library Science course.)	2
LS 5495 General Reference Service	4
LS 6494 Technical Services in Libraries	4
LS 7499 Terminal Master's Seminar and Essay or Project	4
LS 8512 Issues in Librarianship	3

And at least two of the following three courses:

LS 8493 Subject Reference and Bibliography: Humanities	4
LS 8494 Subject Reference and Bibliography: Science and Technology	4
LS 8496 Subject Reference and Bibliography: Social Sciences	4

Library Science Electives

(12 credit minimum)

Students are expected to take at least one but not more than two types of library courses, for example, Library Science 5513, 6493, 7492, or 8491, or alternatively, a functional specialization, e.g., Library Science 8492, 8498. Those students preparing for school library-media service should consult adviser about requirements for this specialization.

Minor Cognates

(optional)

The student may elect courses outside of Library Science appropriate for his specialization with the adviser's consent.

M.S.L.S. Degree with Teacher Certification

This program is designed for the individual holding a bachelor's degree who wishes to qualify for a school library/media position. It offers the courses and laboratory experiences required for the professional library degree and provisional elementary or secondary teacher certification. An important feature is its provision for directed teaching in both the classroom and the library/media center.

The student entering this combined program must choose between elementary or secondary teacher certification. The combined elementary certification and M.S.L.S. curriculum is offered in three fields: social studies, English, or science. The combined *secondary* certification and M.S.L.S. curriculum is offered in two fields: secondary English or secondary social studies. Eligibility for either program requires the possession of sufficient credit for either a major or minor in one of the disciplines in the subject field (e.g., history, sociology, chemistry, English) or for a group major or group minor in the field (e.g., social studies, science). Students who lack the prerequisite credits should expect to take additional courses in these subjects over and above the seventy-six to eighty-two credit minimum requirement for the combined program. Consult Library Science advisers for program descriptions.

UNDERGRADUATE PROGRAM

The curriculum provides initial preparation for library/media specialists in elementary or secondary schools. Students interested in school library/media preparation may complete a minor of thirty credits in library science during their junior and senior years. The library science minor qualifies them for library service in the grades for which they receive a provisional certificate (e.g., library science minor on an elementary provisional certificate qualifies the holder for library/media positions in grades K-9).

The combined curriculum in library education and secondary education is offered in two fields: secondary social studies-library science and secondary English-library science. The combined curriculum in library education and elementary education is offered in three fields: English, social studies, and science. Students in the combined curriculum will earn eighty credits in general education in the College of Liberal Arts before their formal admission to the Division of Library Science Education and the Division of Teacher Education in the College of Education. Students planning for school library/media careers are urged to consult with advisers in Library Science (315 Kresge Library) early in their sophomore year for detailed information. Sample programs for those interested in the elementary and secondary school library/media specialty are available upon request.

College of Liberal Arts and Monteith College students interested in public, academic, or special library work may be authorized to take up to twelve credits of appropriate library science courses at the undergraduate level. Such courses would be articulated with the M.S.L.S. graduate degree program. Students interested in this program should consult with advisers in the Library Science Division.

COURSES OF INSTRUCTION¹ (L S)

3496. Directed Study. Cr. 2-6 (Max. 6).

Prereq: consent of adviser.

3498. (TED 3321) Literature for Children Cr. 4.

See Teacher Education 3321.

5491. (ELD 5761) Educational Technology. Cr. 4.

See Education Leadership 5761.

5492. Selection and Evaluation of Library Materials for Children. Cr. 4.

Prereq: L S 3498. Study and evaluation of books and audio visual materials suitable for school and public libraries. Bibliographic tools, publishing, and distribution.

5493. History of Children's Literature (TED 5535). Cr. 4.

Prereq: consent of adviser. Historical-bibliographical survey of imaginative and informational literature for children. Analysis and study of sociological and educational aspects of childhood as reflected in the literature.

5494. Selection and Evaluation of Library Materials for Young Adults. Cr. 4.

Acquaintance with and critical analysis of literature and other instructional materials in all subject fields and in all formats.

5495. General Reference Service. Cr. 4.

Reference function of the library; major, general titles in the reference collection with criteria for their evaluation; sources of continuing knowledge of reference materials; processes used in exploiting library resources to supply information.

5497. Introduction to Librarianship. Cr. 2.

The development and place of libraries in society; objectives, functions and trends of major types of libraries.

5498. (TED 5323) The Art of Storytelling. Cr. 4.

Prereq: L S 3498 or TED 5326 or consent of instructor. See Teacher Education 5323.

5512. (ELD 5762) Instructional Materials Workshop (TED 5762). Cr. 2-4.

Prereq: L S 5491 or consent of instructor. See Education Leadership 5762.

5513. School Library-Media Programs (ELD 5765). Cr. 4.

The library-media program in elementary and secondary schools: organization, administration and patterns of service.

5518. (TED 5326) Survey of Recent Literature for Children (ELD 5326). Cr. 4.

See Teacher Education 5326.

6491. Reading, Viewing, and Listening Interests of Children and Youth. Cr. 4.

Prereq: consent of instructor. Factors related to reading, viewing, and listening interests and their effects. Emphasis on research investigation and application. (W)

6493. Public Library Systems and Services. Cr. 4.

Prereq: consent of adviser. Present-day functions of public libraries

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

as social agencies. Organization, administration, and patterns of service.

6494. Technical Services in Libraries. Cr. 4.

Prereq: consent of adviser. Survey of objectives and methods of acquisition, classification, cataloging, preparation of books and materials in libraries.

6498. Workshop — Problems in the Selection and Utilization of Learning Materials (TED 5016). Cr. 4.

Prereq: teaching or school library experience. Programs designed to improve selection, evaluation and utilization of library-media resources.

6512. (TED 6532) Literature for Adolescents. Cr. 3-6.

Prereq: directed or regular teaching. See Teacher Education 6532.

6514. (TED 6314) Analysis, Selection, and Use of Literature for Children. Cr. 4.

Prereq: L S 5518 or consent of instructor. See Teacher Education 6314.

6515. (ELD 6765) Organization and Management of Learning Resources. Cr. 4.

Prereq: L S 5491 or ELD 7825 and consent of instructor. Open only to master's candidates in instructional technology, library science and educational administration. See Education Leadership 6765.

7490. Professional Field Experience and Seminar. Cr. 3-4 (Max. 4).

Prereq: 24 credits in appropriate graduate library science courses and consent of supervising faculty. Planned contact with the practicum of librarianship (public and technical services, sociological environment, library personnel) at the professional level through on-site experience in a participating library under the direction of a skilled professional librarian and the supervision of a member of the Library Science Division faculty. Seminars to be arranged. Application for winter and spring quarters by the first day of preceding quarter; for fall quarter by the first day of spring quarter. (F, W, Sp)

7492. Special Libraries. Cr. 3.

Prereq: L S 5497. Objectives, organization, administration, and services of libraries in business, industry, government and other agencies.

7493. School Media Center Administration. Cr. 4.

Prereq: L S 5513 and library-media experience. Management function of the library-media program director in budget, personnel resources and facilities. (Sp, Su)

7494. Selection and Evaluation of Library Materials for Adults. Cr. 4.

Prereq: consent of adviser. Critical analysis of bibliographic and information sources, aids and tools used in selection of materials for adults. Study, analysis, and evaluation of books in all subject fields. (F, W, Su)

7495. (ELD 7761) Instructional Design. Cr. 4.

Prereq: L S 5491, ELD 7825 or consent of instructor. See Education Leadership 7761.

7496. Research and Directed Study. Cr. 1-12 (Max. 12).

Prereq: written consent of adviser and graduate officer.

7498. History of Books and Libraries. Cr. 3.

Prereq: 6 credits in library science. Development of books and libraries from earliest records to the present. Social implication of books and libraries in a democracy.

7499. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: written consent of division head and L S 8512.

7511. (TED 7312) Functions of Literature for Children in the Elementary School Curriculum. Cr. 4.

Prereq: L S 6514 or consent of instructor. See Teacher Education 7312.

7512. (HIS 0702) Introduction to Archival Methods. Cr. 4.

Prereq: consent of chairman. Basic training in archival methods. (F)

7513. (HIS 0703) Introduction to Archival Methods. Cr. 4.

Prereq: consent of chairman. Continuation of History 0702. (W)

7514. (HIS 0704) Introduction to Archival Methods. Cr. 4.

Prereq: consent of chairman. Continuation of History 0703. (Sp)

7515. Government Publications. Cr. 4.

Prereq: L S 8496. The selection, acquisition, access, and reference use of major federal, state, and local documents. Introduction to selected United Nations materials. Practice in use of indexes and aids.

7518. (TED 6016) Communication, Popular Culture, and the Curriculum. Cr. 3-6.

See Teacher Education 6016.

8491. College and University Library Systems and Services. Cr. 4.

Prereq: L S 5497. Role of academic library in higher education. Organization, administration, and patterns of service.

8492. Automation and Data Processing for Libraries. Cr. 4.

Prereq: L S 5495, 5497 and 6494. Storage and retrieval problems as approached by conventional and nonconventional methods. Computer applications in libraries. (W, Sp, Su)

8493. Subject Reference and Bibliography: Humanities. Cr. 4.

Prereq: L S 5495. The library as preserver, organizer, and disseminator of the cultural heritage. The nature of humanistic studies. Bibliographic control of scholarship in literature and the arts. Reference tools through which works of literature and art are organized, evaluated, and made available for appreciation, enjoyment, and study.

8494. Subject Reference and Bibliography: Science and Technology. Cr. 4.

Prereq: L S 5495. The generation, organization, and pattern of bibliographic control of the literature of both the basic and the applied sciences. Characteristics of the "scientific method" and the "scientific community" which influence the transmission of scientific information. Familiarity with the various forms of scientific communication, both formal and informal, and with the particular scientific reference tools which retrieve scientific information. (F, W, Sp)

8496. Subject Reference and Bibliography: Social Sciences. Cr. 4.

Prereq: L S 5495. Characteristics of the social science disciplines: structure, concepts, methods of investigation. Major figures and significant works in the general field. Bibliographical control (bibliographies, abstracting and indexing services, journals), reference

tools (sources of information on scholars, learned societies, statistics), instructional resources (sources, methods of evaluation, organization, and use).

8497. Medical Bibliography and Medical Library Administration. Cr. 4.

Prereq: LS 8494 and consent of instructor. Study and evaluation of medical literature and sources of information.

8498. Advanced Classification and Cataloging. Cr. 4.

Prereq: LS 6494. Comparative study of the underlying theory, structure, and application of a variety of classification systems; complex descriptive and subject cataloging; special problems relating to organization of recorded information.

8512. Issues in Librarianship. Cr. 3.

Prereq: written consent of division head; coreq: LS 7499. Critical analysis of library research, socio-technological trends, implications for the profession.

8513. Reprography for Librarians and Archivists. Cr. 4.

Prereq: consent of instructor. A basic course in the fundamentals of copying and documentary reproduction.

8514. Introduction to Archival and Library Conservation. Cr. 4.

Prereq: written consent of instructor and advanced standing in master's program. Offered at Greenfield Village Conservation Laboratory. Basic course in the fundamentals of archival and library conservation problems and methods essential for effective preservation management of paper and associated materials.

8515. Principles and Practices of Archival and Library Conservation. Cr. 4.

Prereq: LS 8514 and consent of instructor. Offered at Greenfield Village Conservation Laboratory. Advanced course in library and archival conservation providing theory and practice of basic laboratory preservation and restoration treatment.



TEACHER EDUCATION

Office: 241 Education Building

Head: Leonard Kaplan, Ed.D.

Associate Head: Fred S. Cook, Ph.D.

Associate Head: Joseph Sales, Ed.D.

Academic Services Officer: Otis Morris

Professors

Willard Bateson, Ph.D., Donald Bissett, Ph.D., Thomas Coleman, Ph.D., Cynthia Colvin, Ed.D., DeLisle Crawford, Ph.D., Murray Douglas, Ph.D., Jean Fair, Ph.D., Freda Harrington, M.Ed., Frank Lanham, Ph.D., Marian McMillan, Ed.D., Sylvan Mikelson, Ed.D., G. Harold Silvius, Ed.D., E. Brooks Smith, Ed.D., Eugene Smith, Ph.D., Gary Smith, Ph.D., Samuel Stone, Ph.D., Helen Suchara, Ed.D., Louis VanderLinde, Ed.D., Earl Weiley, Ed.D., Frank O. Youksetter, Ed.D.

Associate Professors

Margaret Ashworth, M.Ed., Fred Attebury, M.A., Daniel Behmer, Ph.D., Asa Brown, Ph.D., Kenneth Hanninen, Ph.D., Annamarie Hayes, Ph.D., Polly Hughes, Ed.D., Otto Jiskra, M.A., Bette LaChapelle, M.Ed., Katherine Macks, M.S., David Makinson, Ph.D., John Norman, Ph.D., Richard Parres, Ed.D., James Quina, Ph.D., V. Gwen Retherford, Ed.D., Peter Sanders, Ph.D., Jacqueline Tilles, Ph.D., Ronald Urick, Ph.D.

Assistant Professors

Rudi Alec, Ph.D., John Bies, Ph.D., James Blake, Ph.D., John Camp, Ph.D., Gwendolyn T. Hogue, M.A., Jack Humbert, Ed.D., Wilfred Innerd, Ph.D., Tommie Johnson, Ed.D., Loretta Jones, M.A., Suzanne Loss, Ed.D., Ruth Moline, M.Ed., Otis Nelson, Ph.D., Arthur Park, M.Ed., David Pendergast, Ph.D., Mary Rockafellow, M.S., Chauncey Smith, Ph.D., Geneva Smitherman, Ph.D., Hubert P. Watson, Ph.D.

Instructors

Kenneth Brumbaugh, M.S., Wesley Garner, M.Ed., Barbara Greene, M.Ed., Ernest Heyman, M.Ed., Barbara Loss, M.Ed., Patricia Mahieu, M.Ed., Mark Miko, M.A., Sewall Phelps, M.Ed., Barbara Rennie, M.A.T., Melvyn Robinson, M.Ed., Ronald Stedman, M.A., Carol Stenroos, M.Ed., Priscilla Stoloff, M.S., Edward Walker, M.Ed., Ruby Walter, M.A.T., June Yackness, M.Ed.

PURPOSES

The Division of Teacher Education focuses upon the development of competence in instruction and the improvement of curriculum at all levels and in many kinds of educational institutions. Pre-service, in-service, and instructional leadership teacher education programs are:

1. pointed towards identifiable abilities in teaching, not only basic skills but complex processes in inquiry and valuing related to the best of modern knowledge;
2. field-oriented through continual interrelation of studies and practicums in differing socio-economic and ethnic communities;
3. cooperatively developed with those in the schools and their communities, the faculty and students of the College of Education, and those in the University at large;
4. arranged for a clinical approach to the study of teaching in school settings fostering innovation and curricular improvement;
5. humanely oriented, fostering personal growth and interaction, and the participation of all, regardless of age, sex, racial or ethnic origin, in the opportunities of education;
6. planned for interdisciplinary study in the liberal and pedagogical disciplines to meet educational problems through inquiry and the use of theory; and
7. built upon the recognition of the influence of the culture of the school and the teacher's role in decision making.

The Division offers programs for a wide range of professional roles:

1. pre-service preparation at pre-school, elementary, special education, and the secondary levels in all areas of school curriculum;
2. in-service, improving the competence of teachers — pre-school, elementary, special education, secondary, and community college in all levels of school curriculum; and offering opportunities of developing new abilities for particular school settings and changing educational needs;
3. instructional leadership and specialized responsibilities;
4. college and university teachers and researchers in the field of teacher education.

UNDERGRADUATE PROGRAMS

Within the Division of Teacher Education

Interdisciplinary Teacher Education offers programs leading to a bachelor's degree and a Michigan Provisional Certificate in the areas of: art education, elementary education, secondary English/speech, secondary foreign language, mathematics education, secondary science, secondary social studies and special education.

Vocational and Applied Arts Education offers programs leading to a bachelor's degree and a Michigan Secondary Provisional Certificate in the areas of: business and distributive education, family life education, and industrial education.

Post-degree programs are also available to those who wish to qualify for elementary or secondary certification in the

above named areas but who do not wish to enter a Master of Arts in Teaching degree program.

Elementary education students who desire to complete the requirements for Nursery School Approval should consult an adviser in Room 212, Education Building.

Graduation Requirements

Students completing a program leading to a Bachelor of Science degree and Michigan Provisional Certificate must meet the following graduation requirements:

1. Completion of at least 186 credits.
2. Sixty credits in general education.
3. Completion of majors and minors appropriate to the level of the certificate.
4. Completion of the appropriate professional education sequence.
5. Minimum grade point average of 2.0.
6. Three credits in physical education.
7. Three credits in hygiene.
8. Completion of the University requirement for American government.

Students completing a program leading to the Bachelor of Arts degree and Michigan Provisional Certificate must complete the above graduation requirements and must have at least sixteen credits in a foreign language.

TEACHING CERTIFICATES

One of the characteristics of present day education is the specialization of teaching particularly at the secondary school and college levels and, to some extent, in the elementary school. This specialization is related not only to the subject-matter fields but also to the age groups of school children. The Michigan Certification Code provides for specialization in either the elementary or the secondary school areas by authorizing state certification for teaching on those two levels. Thus, a person who has kindergarten through grade nine endorsement is not legally qualified to teach in the secondary schools above grade nine, and a person with grades seven through twelve endorsement is not legally qualified to teach below grade seven. An exception is made in certain fields such as art, special education, family life education, health and physical education, industrial education, school library education, and music education, where the holder of a provisional certificate is qualified to teach his major subject in all grades, and, if indicated by his certificate, other subjects in other grades.

The certification code recognizes subject-matter specialization by requiring that the candidate for a teacher's certificate present concentrations of credits called majors and minors. The secondary school teacher must have a major and a minor teaching field, and the elementary school teacher must have either a major and a minor or three minor teaching fields.

All majors and minors must be in subject-matter fields appropriate to teaching at the level for which certification is to be recommended.

Certification Requirements

Michigan State Teachers' Certificates are granted by the Michigan State Board of Education upon the recommendation of the College of Education. Initial certificates are provisional and may become continuing certificates after three years of successful teaching experience and the completion of additional college work. Both the teaching experience and the additional hours must be completed after the issue date of the provisional certificate. Continuing certificates lapse if the holder does not engage in teaching for a period of five consecutive years or more. Certificates will indicate in what grades and subjects the holder is eligible to teach. In certain specified nonacademic fields, however, the holder of a provisional certificate is eligible to teach his major subject in all grades from the kindergarten through the twelfth. No permanent or continuing certificate qualifying a person to teach in the public schools of this state shall be granted to any person who is not a citizen of the United States. The qualifications which the College requires for recommendation for the certification are summarized below.

Provisional Certificates

Teaching certificates as listed below are granted with the bachelor's degree upon the completion of the four-year course.¹ They are also granted to students who already 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 Nine²

1. The candidate must have graduated with a bachelor's degree from an approved or accredited teacher-education institution.
2. The academic background must include one major (may be a group major) and one minor, or three minors. (Two of the three minors must be in subjects or subject fields taught in the elementary grades.) A subject major is defined as forty-five credits and a group major as fifty-four credits. A subject minor is thirty credits, and a group minor is thirty-six credits.
3. Completion of a professional education sequence is required.

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.

² The candidate for the elementary provisional certificate may be recommended for nursery school approval upon completion of designated requirements including student teaching contacts at Wayne State University Nursery School in the Jeffries Homes and other selected sites. Please consult with an adviser.

Secondary Provisional —

Endorsement for Grades Seven through Twelve

1. The candidate must have graduated with a bachelor's degree from an approved or accredited teacher-education institution.
2. The academic background must include one major (may be a group major) and one minor (may be a group minor) in subjects or subject fields in which the applicant expects to teach. A subject major is defined as forty-five credits and a group major as fifty-four credits. A subject minor is thirty credits, and a group minor is thirty-six credits.
3. Completion of a professional education sequence is required.

Certificate Conversion

Holders of one level of certificate who wish to convert to another level (i.e., elementary to secondary or vice versa) must consult a counselor in the Division of Academic Services, 489 Education Building.

Certification for Post-Baccalaureate Students

A college graduate holding the bachelor's or master's degree may qualify for a teaching certificate by completing a Master of Arts in Teaching degree program or a Master of Science in Library Science degree and certification program, or by completing a recognized post-degree program. See page 56 for general requirements for the Master of Arts in Teaching degree. The student may need to supplement his previous degree work in order to satisfy major and minor provisions of the Michigan certification code.

Permanent Certificates

Michigan State permanent certificates are granted by the State Board of Education to holders of provisional certificates issued prior to July 1, 1970, when they have (a) completed at least three years successful teaching experience³, and (b) earned at least fifteen additional credits in an accredited liberal arts college or college of education, or hold a master's degree.

The additional required credit, as well as the requisite teaching experience, **must follow** the date of issue of the original provisional certificate.⁴ The teaching experience of holders of the elementary certificate must be in the elementary school grades (K-9); the teaching experience of holders of the secondary certificate must be in secondary school grades (7-12).

³ In cases where the experience requirement has not been met, it is possible to secure one three-year renewal of a provisional certificate if the holder has completed fifteen credits of college work since the date of issue.

⁴ W.S.U. students completing degree and certificate programs may not apply graduate credit taken under the Senior Rule toward a permanent or continuing certificate.

The permanent certificate is recommended by the institution which had previously recommended the provisional certificate. Application should be made to that institution as soon as the candidate feels he is qualified for permanent certification.

Continuing Certificates

Michigan Continuing Certificates are mandatory for those in-service teachers who qualified for a provisional certificate on or after July 1, 1970. The State Board of Education provides the following two methods by which the continuing certificates can be granted:

Twenty-Seven Hour Continuing Certificate

For holders of provisional certificates who have taught successfully for three years after the issue date of their provisional certificate and have completed twenty-seven quarter credits in a planned course of study after the issue date of their provisional certificate or have a master's degree.¹

Forty-Five Hour Continuing Certificate

For information regarding the Forty-five Hour Continuing Certificate, please consult with the Certification Officer, 469 Education Building.

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 Directed Teaching Office will determine the quarter student teaching will take place.

Student teaching application periods are as follows:

Fall quarter the preceding December-February
 Winter quarter the preceding April-July
 Spring quarter the preceding October-November

Prerequisites for Student Teaching Placement

1. Full admission to the College of Education must be accomplished before application for student teaching can be accepted.
2. Completion at Wayne State University of not less than eight credits in course work authorized by the student's curriculum area adviser.

¹For a student who is admitted to a program leading to a master's degree, the first twenty-seven credits are considered a planned program. Students not seeking a master's degree should consult with a counselor in 489 Education Building regarding an appropriate planned course of study.

3. Adequate work in the teaching major and minor(s) as defined by the student's curriculum area in the College of Education.

4. Satisfactory completion of appropriate pre-student teaching courses and appropriate methods courses as outlined by the student's adviser.

5. Satisfactory health record and tuberculosis test within six months before assignment begins.

6. Satisfactory speech and hearing rating prior to assignment.

7. Student's Wayne State University honor point average must be 2.0 or higher at the time of application for student teaching.

Procedures for Student Teaching Application

1. Confer with adviser to determine eligibility for student teaching and obtain written approval which is to be submitted with application forms.

2. Complete application forms provided by the Directed Teaching Office, 469 Education Building, during appropriate application period.

3. Complete health examination and tuberculosis test at University Health Service, fifth floor, Mackenzie Hall.

INTERDISCIPLINARY TEACHER EDUCATION

The faculty of Interdisciplinary Teacher Education represents various disciplines and curriculum areas. Faculty and personnel from the school districts in which field experiences take place are organized into teams. Upon admission to the program students are assigned to groups, each under the direction of a faculty team, and normally will remain within the same group and team throughout their professional preparation.

The programs offered are interdisciplinary in nature and are developed cooperatively by the faculty and school educators. The professional sequence is primarily field based and is being developed on a competency based design. Student participation in the development and implementation of these programs, particularly in the professional sequence, is expected. For those students who can not attend during the day a late afternoon-evening program is available. Students may enter this program only in the fall quarter. Such enrollment must be approved by the Division Screening Committee.

The general requirements for undergraduate degrees and provisional certification are described in a preceding section of this bulletin. Consult faculty for specific requirements in Interdisciplinary Teacher Education.

The professional sequence in these programs consists of the following courses:

	<i>credits</i>
ITE 3355.....Professional Education: Theory and Practice I.....	8
ITE 3356.....Professional Education: Theory and Practice II.....	8

ITE 3357	Professional Education: Theory and Practice III	8-12
ITE 4355	Internship and Seminar	16

Additional courses are available to students for whom it is determined further study or field experience is needed or for those students who desire to raise their level of competency.

ART EDUCATION CURRICULUM

Students in Art Education are initially admitted to the program at the freshman level.

Part of the admission requirements to *senior college* level is acceptance by a departmental jury of a portfolio of the student's art work. Consult advisers, 163 Community Arts Building, for more specific details relative to the portfolio and jurying schedule.

The four-year curriculum is as follows:

First Year		
<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
S S 0191 5	S S 0192 5	ANT 0210 4
Art History 4	ART 0102 4	English Elective (0200 level) 4
ART 0101 4	TED 1111 4	ART 0131 4
Gen. Ed. Elective ¹ 3	Phys. Ed. Elective 1	TED 1118 4
	ENG 0150 4	
Second Year		
Gen. Ed. Electives ¹ 7	SPH 0200 4	PSY 0198 4
ART 0103 4	ART 0132 4	HEA 0281 3
TED 2113 4	TED 2111 4	TED 2114 4
Phys. Ed. Elective 1	Gen. Ed. Elective ¹ 3	Gen. Ed. Elective ¹ 4
	Phys. Ed. Elective 1	
Third Year		
TED 4111 4	Art History 4	Art History 4
TED 5123 4	TED 5121, 5119, or 5128 4	TED 5127 4
Gen. Ed. Electives ¹ 8	Gen. Ed. Electives ¹ 8	Electives 8
		ITE 3355 8
Fourth Year		
TED 4018 8	TED 4019 8	TBF 3601 4
TED 5117 4	Elective 4	Gen. Ed. Elective ¹ 4
Elective 4	Gen. Ed. Elective ¹ 3	Elective 4

SPECIAL EDUCATION CURRICULA

Programs in Special Education prepare teachers for work with all types of exceptional children. Preparation is provided for teacher-clinicians for work in diagnostic-clinical centers, specialists for college teaching and for persons involved in educational programs or day schools and residential institutions.

¹ General education electives and unspecified electives may be used for development of subject matter or method-content minor. Unspecified electives may be applied to the major field as well as the minor field.

Approvals and Certifications

Approval 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. Approval requirements established by the Michigan State Department of Education apply to teachers of the blind and partially seeing, crippled, deaf and hard-of-hearing, speech impairment, mentally retarded, emotionally disturbed, children with learning disabilities.

Advisers for the various Special Education areas (undergraduate and graduate) are:

Crippled and otherwise Health Impaired	Retherford
Deaf and Hard-of-Hearing	Brown
Mentally Retarded	Nelson, Watson
Speech Handicapped-Pathology and Science	Dreyer, Falk, McClung
Visually Handicapped (Blind-Partially-Seeing)	Hanninen
*Emotionally Disturbed	Brown, Coleman
*Learning Disabilities	Parres
Mentally Retarded	Nelson, Watson
Teacher Counselors	Staff
College Teaching in Special Education	Doctoral advisers

General Education Courses

Below are recommended general education courses to be completed by special education undergraduates prior to admission to the College of Education. Consult adviser on other courses to fulfill the general education requirement.

	<i>credits</i>
ENG 0150 Freshman Literature and Composition	4
ENG 0200 Level	4
SPH 0200 Effective Speech	4
TED 3321 Literature for Children	4
BIO 0103 Introductory Biology	5
HEA 0283 First Aid	2
PSY 0198 Introductory Psychology	4
MAT 0111 Math for Elementary School Teachers I	3
MAT 0112 Math for Elementary School Teachers II	3
MAT 0113 Math for Elementary School Teachers III	3
Physical Education	3

Specialization — Major Requirements in Special Education

Courses for the group major in undergraduate areas of special education are listed below. The group major in all areas must be a *minimum of fifty-four quarter hours*. Please consult area adviser concerning minor requirements.

* These programs must be completed at the graduate level for certification.

Crippled and Otherwise Health Impaired

	<i>credits</i>
TED 4403..... Special Education Foundations Readings I	1
TED 4404..... Special Education Foundations Laboratory and Seminar I	3
TED 4405..... Special Education Foundations Readings II	1
TED 4406..... Special Education Foundations Laboratory and Seminar II	3
TED 4407..... Special Education Foundations Readings III	1
TED 4408..... Special Education Foundations Laboratory and Seminar III	3
TED 5110..... Art for Classroom Teachers I	4
TED 5403..... Education of Exceptional Children	4
TED 5404..... Speech Improvement in the Classroom	3
TED 5413..... Teaching Mentally Retarded Children	3
TED 5425..... Therapeutic Care of Crippled Children	4
TED 5426..... Teaching Crippled Children in School, Home and Hospital	4
TBF 5741..... Mental Hygiene and Its Relation to the Problems of Education	3
TBF 6831..... Introduction to Psychological Testing	4
ELD 5761..... Educational Technology	4
BIO 0187..... Anatomy and Physiology	6
or PSY 0505..... Physiological Psychology	4
Electives	5-7

Deaf and Hard-of-Hearing

	<i>credits</i>
TED 5110..... Art for Classroom Teachers I	4
TED 5403..... Education of Exceptional Children	4
TED 5432..... Phonetics	4
TED 5433..... Anatomy and Physiology of Speech Mechanism	4
TED 5440..... Introduction to Audiology	4
TED 5445..... Observations in Deaf Education	2
TED 5446..... Tutorial Experience in Deaf Education	3
TED 5450..... Introduction to Education of the Deaf	3
TED 5451..... Speech Reading and Auditory Training	3
TED 5452..... Speech and Language for the Deaf	3
TED 5453..... Teaching the Deaf: Speech	6
TED 5454..... Teaching the Deaf: Lang.	6
TED 5455..... Teaching the Deaf: Speech Reading and Auditory Training	3
TED 5456..... Teaching the Deaf — Academic School Subjects ..	2
TBF 5741..... Mental Hygiene and Its Relation to the Problem of Education	3
TBF 6831..... Introduction to Psychological Testing	4

Deaf Education specialization does not require Special Education Foundation Series (4403-4408).

Mentally Retarded

	<i>credits</i>
TED 4403..... Special Education Foundations Readings I	1
TED 4404..... Special Education Foundations Laboratory and Seminar I	3
TED 4405..... Special Education Foundations Readings II	1
TED 4406..... Special Education Foundations Laboratory and Seminar II	3
TED 4407..... Special Education Foundations Readings III	1
TED 4408..... Special Education Foundations Laboratory and Seminar III	3
TED 5110..... Art for Classroom Teachers I	4
TED 5403..... Education of Exceptional Children	4
TED 5404..... Speech Improvement in the Classroom	3

TED 5411..... Basic Theories, Programs and Practices in Mental Retardation	4
TED 5413..... Teaching Mentally Retarded Children	3
TED 5414..... Teaching Trainable Retarded Children	3
TBF 5741..... Mental Hygiene and Its Relation to the Problems of Education	3
TBF 6831..... Introduction to Psychological Testing	4
ELD 5761..... Educational Technology	4
BIO 0187..... Anatomy and Physiology	6
or PSY 0505..... Physiological Psychology	4
Electives	6-8

Visually Handicapped

	<i>credits</i>
TED 4403..... Special Education Foundations Readings I	1
TED 4404..... Special Education Foundations Laboratory and Seminar I	3
TED 4405..... Special Education Foundations Readings II	1
TED 4406..... Special Education Foundations Laboratory and Seminar II	3
TED 4407..... Special Education Foundations Readings III	1
TED 4408..... Special Education Foundations Laboratory and Seminar III	3
TED 5110..... Art for Classroom Teachers I	4
TED 5403..... Education of Exceptional Children	4
TED 5404..... Speech Improvement in the Classroom	3
*TED 5405..... Introduction: Education of Visually Handicapped Children	2
*TED 5420..... Pathology of the Organs of Vision	4
*TED 5421..... Teaching Partially-Seeing Children	3
*TED 5422..... Braille Techniques and Practice I	2
*TED 5423..... Teaching Blind Children	3
*TED 5424..... Braille Techniques and Practice II	2
*TED 6420..... Orientation and Mobility: Visually Handicapped Children	3
TBF 5741..... Mental Hygiene and Its Relation to the Problems of Education	3
ELD 5761..... Educational Technology	4
BIO 0187..... Anatomy and Physiology	6
or PSY 0505..... Physiological Psychology	4
Electives	2

Speech Handicapped — Pathology and Science

	<i>credits</i>
TBF 6831..... Introduction to Psychological Testing	4
TBF 5741..... Mental Hygiene and Its Relation to Problems of Education	3
TED 5403..... Education of Exceptional Children	4
TED 5430..... Introduction to Speech Pathology	5
TED 5431..... Clinical Methods in Speech Pathology	5
TED 5432..... Phonetics	4
TED 5433..... Anatomy and Physiology of the Speech Mechanism ..	4
TED 5434..... Clinical Practice in Speech Pathology	6
TED 5435..... Theories of Normal Language Development	4
TED 5436..... Normal Language Acquisition and Usage	4
TED 5440..... Introduction to Audiology	4
TED 5441..... Practicum in Audiology	2
TED 5451..... Speech Reading and Auditory Training	3
TED 6430..... Speech Pathology	12
TED 6432..... Organization and Methods in Speech Pathology ..	4

*These courses are offered only once per year.

VOCATIONAL AND APPLIED ARTS EDUCATION

Vocational and Applied Arts curricula are based on competencies necessary for the preparation and certification of teachers of business, distributive, family life and industrial education. Coterminous programs leading to the bachelor's degree or the Master of Arts in Teaching degree and recommendation for a provisional teaching certificate are offered.

Assessment of the background of applicants in content, oral and written communication, and computation is made at the time of admission through competency tests or their equivalents.

In addition to the regular admission procedures, each applicant must have a personal interview with a Vocational and Applied Arts Education adviser and complete a plan of work approved by the Vocational and Applied Arts Education Administrative Committee.

With an approved plan of work, an adviser's signature is unnecessary on course elections at registration. Because of the developing nature of programs, curriculum changes will affect some requirements as specified on plans of work. The responsibility rests with the student to follow the approved plan; to follow modifications in course titles, numbers, or equivalencies; and to see an adviser when changes are required in the plan of work.

Michigan Certification and Vocational Endorsement

Secondary provisional certification with vocational endorsement is coterminous in all areas of the department except industrial arts. All certification requires an approved major and an approved minor. All vocational endorsements in wage-earning occupations require two years of relevant and recent work experience.

Continuing certification with *vocational endorsement* requires a planned program of specific courses as designated by the department. See a departmental adviser on certification for an approved program leading to continuing certification with a vocational endorsement.

Professional Education

Prior to beginning the professional sequence, Vocational and Applied Arts Education students are required to have seventy-five per cent of the course work completed in their teaching major. They are also required to complete the following professional education experiences in the sequence indicated. The goal of Vocational and Applied Arts Education is to develop a competency-based certification program. Consequently, to receive credit for any of the following courses the successful completion of a competency examination is required.

- VAE 5191, Practicum in Principles of Teaching Vocational and Career Educational Programs
- VAE 5195, Foundations of Teaching and Learning
- Two specified methods courses in appropriate curriculum area
- VAE 4192 or 7192. Teaching Internship: Secondary Schools

- TBF 3601, Introduction to Philosophy of Education: TBF 7601, Philosophy of Education (to be elected concurrently with intern teaching)

Intern teaching in all curricula of Vocational and Applied Arts Education is scheduled for five full days per week for a public school semester. Fall semester (fall and winter quarters) usually begins the day after Labor day and terminates the latter part of January. Winter semester (winter and spring quarters) begins approximately February 1 and terminates the middle of June.

BUSINESS AND DISTRIBUTIVE EDUCATION

The requirements of the several programs of the curriculum area are detailed to students in their first advisement session, a prerequisite to making a plan of work. Schedules for general advisement are posted each term.

FAMILY LIFE EDUCATION

It is possible, within the undergraduate program, to qualify for both the general vocational endorsement and the wage-earning home economics endorsement. This option is possible by pursuing a minor in one of the vocational wage-earning services.

Students planning to pursue this curriculum may enter the Department of Family and Consumer Resources, College of Liberal Arts, as freshmen or sophomores. It is recommended that the curriculum listed below be followed for the first two years.

First Year		
<i>Fall Quarter</i>	<i>Winter Quarter</i>	<i>Spring Quarter</i>
SPH 0200 ... 4	ENG 0150 ... 4	English Elect. 0200 level . 4
FAC 0154 ... 4	FAC 0213 ... 4	FAC 0221 ... 4
FAC 0241 ... 4	FAC 0180 ... 4	PHS 0193 ... 5
PHS 0191 ¹ ... 4	PHS 0192 ¹ ... 4	SS 0191 ... 5
Phys. Ed. Elective ... 1	Phys. Ed. Elective ... 1	
Second Year		
SS 0192 ... 5	FAC 0254 ... 4	FAC 0171 ... 4
PSY 0198 ... 4	FAC 0503 ... 4	FAC 0311 ... 4
FAC 0260 ... 4	PSY 0330 ... 4	HEA 0281 ... 3
Elective ... 4	Major Elective 4	ART ... 4
		Phys. Ed. Elective ... 1

Special Education Minor

A minor in special education may be obtained for students wishing to qualify to teach homemaking and family living in schools or classes for exceptional children. Consult with an adviser in Special Education for specific requirements.

¹ On consultation with adviser, students may substitute Biology 0103, 5 credits; Biology 0187, 6 credits; plus 1 credit to complete graduation requirements.

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, students pursue one of the vocational technical options.

Teaching Majors

Industrial Arts

Group Major — a minimum of fifty-four credits is required. A group major in industrial arts is composed of limited laboratory experiences in five or more subject areas such as drafting, machine shop, welding, woodwork, auto, graphic arts, sheet metal, and fluid power. A student with a group major in industrial arts would be eligible upon certification to teach general industrial arts in the public schools, K-12 grades.

Unit Major — a minimum of fifty-four credits is required. A unit major in industrial arts is composed of one or two subjects in which the student has depth in laboratory experiences. A student with a unit major in industrial arts would be eligible upon certification to teach his subject or subjects in grades 7-12.

Vocational Technical Education

Unit Major — a minimum of forty-five credits is required. A unit major in vocational technical education is generally composed of a single subject in which the student has had a greater depth in laboratory experiences as compared to one with a unit major in industrial arts, and generally has had work experience in the subject in which he is specializing. A student with a unit major in vocational technical education would be eligible to teach in secondary schools, area vocational schools, and community colleges.

The industrial education curriculum area of vocational and applied arts has phased out most of its technical courses. Planned programs are available to transfer certain technical courses from selected community colleges. These programs provide the student with a majority of his technical courses needed for a teaching major in industrial education. *The Vocational and Applied Arts Education staff must be consulted regarding these programs at cooperating community colleges prior to enrollment.*

Woodworking and sheet materials courses must be taken at Wayne State University since they are not taught in community colleges. These required courses are Vocational and Applied Arts Education 1171, 2171, and 3171.

Since most community colleges are on a semester calendar, students should plan to attend beginning in September or January. It is the responsibility of the student to make arrangements for attendance at the community college.

Industrial Education Credit by Examination

Credit in the following occupational options (x16x entries) may be earned through competency examinations. These credits may be used only for programs in which the student receives a teaching certificate or a minimum of forty credits in the professional sequence, including a minimum of twelve credits in a supervised intern teaching experience. Consult the Vocational and Applied Arts Education Administrative Committee for the examination schedule.

	<i>credits</i>
VAE 1160 Aircraft and Engine Mechanic	45
VAE 1161 Auto-Body Designer	45
VAE 1163 Automobile Body Repairman	45
VAE 1164 Automobile Mechanic	45
VAE 1168 Die Designer	45
VAE 2160 Die Maker	45
VAE 2161 Electrician	45
VAE 2163 Electronics Mechanic	45
VAE 2164 Model Maker	45
VAE 2165 Pipe Fitter	45
VAE 2166 Printer	45
VAE 2168 Refrigeration Mechanic	45
VAE 3163 Tool Designer	45
VAE 3164 Toolmaker	45
VAE 3165 Welder, Combination	45
VAE 4160 Occupational Specialization	45
A. Commercial Foods	
B. Health Occupations	
C. Cosmetology	

GRADUATE PROGRAMS

Programs leading to the Master of Arts in Teaching, Master of Education, Doctor of Education and Doctor of Philosophy degrees and Education Specialist Certificate are offered under the guidance of the staff of the Division of Teacher Education.

See preceding section on graduate degrees for information regarding areas of specialization and basic degree requirements. Consult appropriate divisional adviser for detailed information about areas of specialization.

MASTER'S DEGREES

Elementary Education

Programs leading to the Master of Education degree in elementary education provide opportunity for emphasis in various fields among which are the following:

Literature for Children	Mathematics Education
Science Education	Reading
Early Childhood Education	Social Studies Education
Language Arts Education	

Special Education

Students who have completed certificate and bachelor's degree requirements in non-special education areas and who wish to qualify for approval in an area of special education may take their initial preparation at the master's level.

Students who are certified teachers and 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 Disturbed is secured at the master's level. The curriculum prepares professionals for in-patient and out-patient clinical-hospital settings, as special education teachers in public schools and as teacher-counselor-teacher-consultants with the emotionally disturbed and socially maladjusted. For detailed information contact area advisers.

Preparation programs for the Mentally Retarded, Deaf and Hard of Hearing, Visually Handicapped and Crippled prepare specialists in classroom intervention, resource teachers, teacher counselors, program consultants, program directors, and college and university teachers. For detailed information contact area advisers.

A student who specializes in Speech Pathology and Science must complete the master's degree or its equivalent to be recommended for full certification by the State of Michigan as a school speech correctionist.

Vocational and Applied Arts Education

Vocational and Applied Arts Education is committed to the implementation of competency-based graduate programs. The Professional Development/M.Ed. Competency Based Program encompasses those competencies required for students working towards continuing certification, as well as a program for those pursuing the Master of Education degree.

All applicants to the M.Ed. and M.A.T. programs offered in this area must be interviewed by a curriculum adviser. Concurrent with admission, a plan of work must be completed with an adviser in the chosen curriculum and approved by the V.A.E. Administrative Committee.

EDUCATION SPECIALIST CERTIFICATE

See preceding section for information regarding areas of specialization and general requirements. Please consult with an adviser for specific program requirements and information.

DOCTORAL PROGRAMS

The Ed.D. and Ph.D. program in Teacher Education are designed to prepare professionals for teacher preparation positions in institutions of higher learning, education renewal centers, state and national education agencies, and intermediate and local school districts. The program is designed for those individuals who are committed to the educational renewal of urban America; whose career goals emphasize the

development and improvement of teaching; who desire to prepare themselves for roles in pre-service and in-service teacher education; and who will serve as agents of change, creating and expanding the varied institutions and programs needed for the continuing education of teachers.

An advanced program based on pure and applied research in instruction and curriculum, the doctoral programs in Teacher Education incorporate formal classroom instruction, independent study, and direct clinical experience in a variety of field settings. As such, it recognizes (1) the legitimacy of the emerging pattern of inter-institutional partnerships in teacher education at all levels, (2) the significance of the poly-racial and poly-cultural nature of the metropolitan society, and (3) the importance of the integration of theory, research, and practice as the basis for sound professional development.

Those interested in this program should obtain the divisional statement on the doctorate in Teacher Education and consult with divisional faculty for specific information.

COURSES OF INSTRUCTION¹

Teacher Education (TED)

*1001. **Preschool: Goals and Practices I. Cr. 3-4.**

Prereq: consent of instructor. An examination of the purposes of early childhood programs and the variety of approaches and activities associated with the Head Start concept. The course will be problem-solving in nature and will focus on the best available knowledge and practices being utilized in early childhood programs throughout the country.

*1002. **New Educational Roles. Cr. 3-4.**

Prereq: consent of instructor. For paraprofessionals and teachers in programs in Head Start. Examination of the new roles emerging with the growth of the team concept of staffing and the use of auxiliary personnel in the classroom. The working relationships involving paraprofessionals, teachers and parents and an analysis of new educational roles and interpersonal relationships of adults in the classroom. The implications for creating a climate of learning for children.

*1003. **Preschool Skills and Practice: Music, Art, Science, Language Development. Cr. 3.**

Prereq: consent of instructor. For paraprofessionals and teachers in early childhood programs. Examination of methods in early childhood education as it relates to basic early childhood curriculum.

*1004. **Classroom Management. Cr. 3-4.**

Prereq: consent of instructor. For paraprofessionals in Head Start programs. Delineation of performance goals of paraprofessionals in Head Start classrooms and identification by appropriate techniques in classroom management to fulfill these goals.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

* Consult Early Childhood Education Committee member, room 155, Education Building.

***1005. Community Contacts: Working with Families in Urban Settings. Cr. 3-4.**

Prereq: consent of instructor. For paraprofessionals and teachers in Head Start, and other early childhood programs. Relationships of programs and services within the community to study the dynamics of effectively working with families to improve the services for the child.

***1006. Audio Visual Techniques for the Paraprofessional. Cr. 3-4.**

Prereq: consent of instructor. For paraprofessionals in early childhood programs. Structured to develop skills, abilities, confidences, and competencies in areas of instructional technology needed by teacher aides working with pre-school children in the inner city schools and nurseries.

***1007. Practicum in Preschool and Parent Education. Cr. 2-6 (Max. 6).**

Prereq: consent of director. For paraprofessionals in Head Start and related programs. Offered for S and U grades only. Designed to give the student supervised experience in classroom and nursery school. Regular in-service training designed toward agency curriculum needs and practices.

1009. Practicum for School Paraprofessionals I. Cr. 1-3 (Max. 12).

Prereq: consent of instructor. For school paraprofessionals in a teacher education program. Supervision of school paraprofessionals in classroom settings. Occasional seminars on preprofessional concerns, such as working with children and with school personnel, classroom management, and enhancing the classroom experience.

1010. Multi-Causality Career Development. (10,24). Cr. 3-18.

Prereq: consent of instructor. Offered for S and U grades only. Examination of developmentally related factors, within an anthropological, psychological, and sociological context which contribute to the educational and vocational aspirations of the individual.

1111. Foundations of Art Education in the Third Dimension. Cr. 4.

Required for certification in art education and prior to student teaching. Exploration into crafts and sculptural forms and the interpretations of these toward art education goals in the schools.

1118. Foundations of Graphic Art Education. Cr. 4.

Required for certification in art education and prior to student teaching. Explorations into the foundations of thinking and working two-dimensionally. Development of perceptual insights for graphic expression and its use. Development of man from pre-school to adult in terms of the use of various graphic media and processes.

2009. Practicum for School Paraprofessionals II. Cr. 1-3 (Max. 12).

Prereq: sophomore standing, consent of instructor. For school paraprofessionals in a teacher education program. Supervision of school paraprofessionals in classroom settings. Occasional seminars continue exploration of topics studied in Teacher Education 1009.

2111. Elementary Art Teaching Laboratory. Cr. 4.

Prereq: TED 1111 and 1118 and sophomore standing. Required for certification in art education and prior to student teaching. Initial laboratory experiences directing children in art activities — planning, methods, teaching and evaluation.

2113. Visual Communications. Cr. 4.

Required for certification in art education. Lettering, layout, and technical problems, emphasizing visual-verbal communication.

2114. Design in Wood. Cr. 4.

Required for certification. Wood as a functional and expressive material.

3015. Education and Intergroup Problems in Urban Society. Cr. 4.

Prereq: admission on senior college level to teacher certification program; satisfactory health record and TB test within the last six months. Required of all students admitted to certificate programs, other than vocational and applied arts education or interdisciplinary teacher education. Introductory to and prerequisite to all courses in all curricula leading to elementary and secondary teaching certificates. Analysis of selected problems in public education in the United States; field experiences in school and community settings with special reference to impact of urban intergroup problems on education; an examination of new community demands on the school, changing expectations of students, educators and citizens generally, and public education as an agency for social change.

3016. Directed Study. Cr. 2-8 (Max. 8).

Prereq: written consent of adviser.

3091. The Parent-Teacher Movement. Cr. 2.

Historical development of parent-teacher groups, organization and operational patterns and problems, activities and achievements. Local, state and national programs of parent-teacher cooperation.

3111. Secondary Art Teaching Laboratory. Cr. 4.

Prereq: TED 1111 and 1118. Alternate to TED 2111 requirement for certification with consent of adviser. Required prior to student teaching. Laboratory experiences in directing junior high and high school students in specific art areas; i.e., figure drawing, sculpture, painting. Curriculum and lesson planning, methods, teaching, and evaluation.

3113. Crafts for Occupational Therapy and Special Education. Cr. 4.

Materials and processes adaptable for use in occupational therapy and special education.

3311. Early Childhood Education. Cr. 4.

Prereq: student teaching in nursery school, kindergarten, or primary grades; or consent of instructor. Curriculum of early childhood education as related to growth, learning, and personality development of young children. Role of the teacher in program development, guidance, school-family relationships and inter-agency cooperation.

3315. Methods and Materials of Instruction — Elementary School Mathematics. Cr. 4.

Prereq: TED 3015, TBF 3731, and consent of adviser. Development of mathematical competence in classroom. Objectives, curriculum content, teaching strategies, evaluation of instructional materials, grades K-7.

3317. Reading and Language Arts. Cr. 4.

Prereq: TED 3015 and TBF 3731. Development of the communication skills in the classroom; emphasis on reading, listening, oral and written composition, spelling, handwriting, speech.

3321. Literature for Children (L S 3498). Cr. 4.

Literature appropriate for use with children of pre-high school age. Methods of selection and utilization.

* Consult Early Childhood Education Committee member, room 155, Education Building.

3561. Science in the Elementary Schools. Cr. 4.

Objectives and significant areas of study in science appropriate to the elementary school curriculum. Introduction to teaching resources including experiments, field trips, library materials, equipment, audio-visual resources.

4010. Education and the Black Child. Cr. 4.

Prereq: consent of adviser. New and relevant information concerning the past and present role of education and how it has affected the black child in American society. Examination of theoretical positions concerning the educational needs of black people. Current theories on black education.

4018. Student Teaching and Seminar — Elementary Schools. Cr. 2-16.

Prereq: written consent of program adviser and admission to student teaching. Offered for S and U grades only.

4019. Student Teaching and Seminar — Secondary Schools. Cr. 2-16.

Prereq: written consent of program adviser and admission to student teaching. Offered for S and U grades only.

4020. Black Education: An Historical Perspective. (3,1). Cr. 4.

Prereq: consent of adviser. An historical and contemporary analysis of the black man's struggle to obtain a "real" education in America.

4111. Curriculum Seminar. Cr. 4.

Prereq: TED 2111 or 3111. Open only to art education majors; required for certification in art education. An analysis of various writings in, and related to, basic values in art education. Development of values for facilitating learning in art and curriculum development; impact of urban problems on education. Observation, teaching methods, and independent study problems.

4316. Social Studies in the Elementary Schools I. Cr. 4.

Prereq: TED 3015 and TBF 3731. Development of initial competence in teaching social studies. Objectives, curriculum content and organization, teaching strategies, instructional materials, and evaluation of learning.

4403. Special Education Foundations Readings I. Cr. 1.

Offered for S and U grades only. First reading course in a twelve hour reading and laboratory seminar. Initial coursework leading eventually to competency in teaching a variety of types of moderately handicapped children.

4404. Special Education Foundations Laboratory and Seminar I. (1,2). Cr. 3.

Prereq: TED 4403. Offered for S and U grades only. Demonstrate competency to perform tasks and the acquisition of knowledge as specified in performance objectives in special education: (a) pupil assessment, (b) setting objectives and (c) selecting delivery systems.

4405. Special Education Foundations Readings II. Cr. 1.

Prereq: TED 4403 and 4404. Offered for S and U grades only. Demonstrate acquisition of knowledge from printed sources to fulfill performance objectives in special education professional background and knowledge, instructional evaluation and motivational and behavioral management.

4406. Special Education Foundations Laboratory and Seminar II. Cr. 3.

Credit only on completion of TED 4408. Prereq: TED 4403 and 4404. Offered for S and U grades only. Demonstrate competency

to perform tasks and acquire knowledge as specified in performance objectives in special education in professional background knowledge, instructional evaluation and motivational and behavioral management.

4407. Special Education Foundations Readings III. Cr. 1.

Prereq: TED 4405 and 4406. Offered for S and U grades only. Demonstrate acquisition of knowledge from printed sources to fulfill performance objectives in Special Education personal relationships with other professionals, parents and students as well as matters related to professional ethics.

4408. Special Education Foundations Laboratory and Seminar III. Cr. 3.

Prereq: TED 4405 and 4406. Offered for S and U grades only. Demonstrate competency to perform tasks and acquire knowledge as specified in performance objectives in special education personal relationships with other professionals, parents and students as well as professional ethics.

4541. (SPH 0506) Teaching Speech in Secondary Schools. Cr. 4.

Prereq: 20 credits in speech or consent of instructor. Philosophy, curriculum, and methods for teaching speech in secondary schools.

4553. Introduction to Modern Languages in Secondary Schools. Cr. 4.

Prereq: TED 3015; prereq. or coreq: TBF 3731. Methods and goals in modern language instruction. Application of linguistic theory to language learning. Role of language laboratory. Demonstrations and projects.

***5001. Preschool: Goals and Practices. Cr. 3-4.**

Prereq: consent of instructor. For pre-service and in-service teachers in early childhood programs. See Teacher Education 1001.

***5002. Educational Paraprofessionals: New Careers in Education. Cr. 3-4.**

Prereq: consent of adviser. An examination of two major innovative phenomena affecting school systems, i.e., the introduction of auxiliary personnel in the schools and the new careers concept. Evolving patterns of paraprofessional preparation programs, the development of effective staff relationships, and opportunities for teachers, counselors and administrators to work closely with teacher aides.

5011. Survey of Educational Systems of Major European Countries (ELD 5011). Cr. 4.

Present-day developments in education in those countries of Europe which have influenced schools in all parts of the world: notably England, France, Germany, Scandinavia, Russia; emphasis on historical, political, social and economic bases for school systems in these countries. Recent reform movements and developments stressed.

5013. Survey of Public Education. Cr. 3-4.

Orientation of the teacher in a public school system. Rights, duties, and responsibilities in relation to the local board of education and the state educational system.

5014. Education Workshop (ELD 5014). Cr. 4. (Max. 16).

Must be taken for two consecutive quarters. Teachers, counselors, and administrators cooperate on improvement of instruction and on professional growth. Leadership in group planning and evaluation. Lectures, discussions, conferences, and group work. Dinner required.

* Consult Early Childhood Education Committee member, room 155, Education Building.

5015. Analysis of Teaching. Cr. 4.

Prereq: admission to a Teacher Education Division M.A.T. program; bachelor's degree and consent of adviser. For students in graduate-level teacher preparation programs. Required for admission to an M.A.T. internship or student teaching experience. Analysis of teaching skills, utilizing micro-teaching techniques and field work.

5016. (L S 6498) Workshop — Problems in the Selection and Utilization of Learning Materials. Cr. 4.

Prereq: teaching or school library experience. See Library Science 6498.

5017. Using the Newspaper for Learning. Cr. 3-6.

Prereq: teaching experience. The role of modern media in urban living emphasizing communication about contemporary problems, in print and picture. Interviews with professional newsmen. Techniques for using local and national papers for increasing learning in metropolitan classrooms.

5018. Workshop in Intergroup Relations (ELD 5018). Cr. 3-9 (Max. 9).

Theory and practice of inter-group relations in the field of education. Intergroup problems in the metropolitan community setting. Discussion group sessions, lectures, and individual study.

5020. Laboratory Workshop in Human Interaction (ELD 5020). Cr. 3-9 (Max. 9).

Prereq: written consent of instructor. Small, intensive, self-created groups as laboratories in which members learn how their behavior is seen by and effects others; feelings and attitudes that produce behavior; more appropriate behavior and its application outside the laboratory.

5029. Directed Teaching for In-Service Teachers. Cr. 4-16.

Prereq: written consent of program adviser and Directed Teaching Office. Offered for S and U grades only. Student teaching under supervision of appropriate school and Directed Teaching Office personnel.

5032. Field Experiences for In-Service Teachers. Cr. 4-12.

Prereq: admission by application to Education Admissions and Records Office. Offered for S and U grades only.

5053. Educational Facilities of Henry Ford Museum and Greenfield Village. Cr. 3-4.

Prereq: senior standing or teaching experience.

5074. (D E 5274) Problems in Driver Education and Traffic Safety. (3,1). Cr. 4.

See Driver Education 5274.

5075. (D E 5275) Seminar in Driver Education and Traffic Safety. (3,1). Cr. 4.

See Driver Education 5275.

5093. (H E 5236) Methods and Materials of Instructions — Safety Education. Cr. 3.

See Health Education 5236.

5094. (D E 5273) Teaching Driver Education and Traffic Safety. (3,1). Cr. 4.

See Driver Education 5273.

5110. Art for Classroom Teachers I. Cr 2-4 (Max. 4).

No credit for majors. Creative activities for use in schools and personal development.

5111. Art for Classroom Teachers II. Cr. 2-4.

No credit for majors. Prereq: TED 5110 or teaching experience. Directed and independent explorations into art processes for personal and professional uses.

5113. Art in Home and Community. Cr. 4.

Prereq: TED 5110 or equiv. Art problems pertaining to immediate environment.

5114. Contemporary Trends — Fine Arts. Cr. 4.

Slide lectures illustrating the evolutionary developments of contemporary painting and sculpture and related areas of art. The contemporary artist, his products and the relationship of art to society. Interpretation of information in terms of art education.

5115. Contemporary Trends — Applied Arts. Cr. 4.

Survey of architecture, crafts, machine arts, and related fields of the twentieth century in their historical development. Urban aesthetics. Individual projects based on subject matter, teaching methods, and visual materials.

5116. Design in Wood. Cr. 4.

Prereq: teaching experience. No credit after Teacher Education 2114. Wood in terms of cutting and assembling processes, aesthetic considerations, and applications to elementary and secondary school purposes.

5117. Design in Fibers. Cr. 4.

Required for certification in art education. Fiber techniques with emphasis on a creative approach to teaching.

5118. Graphic Art Education. Cr. 4.

Prereq: TED 1118 or 5110 or teaching experience. Advanced study in areas outlined in Teacher Education 1118 with emphasis on individual investigation.

5119. Light, Sound, Space and Motion. Cr. 4.

Alternate requirement for certification in art education. Studio explorations in the creative uses of light media and sound as artistic expression. Their potential as a means of communication and expression in the classroom.

5121. Puppetry and Related Arts. Cr. 4.

Alternate requirement for certification in art education. Purposes, forms, and construction of puppets; plays, staging, presentation.

5123. Modeling and Pottery — Introduction. Cr. 4.

Required for certification in art education. Modeling processes, decoration, glazing, firing, with concentration on content and methods appropriate to teaching in various school situations.

5125. Comprehensive Crafts. Cr. 4.

Prereq: TED 2114 or 5116 and 5127. Emphasis on combinations of appropriate craft materials; wood, metal, plastics, leather.

5127. Design in Metal. Cr. 4.

Required for certification in art education. Metals as functional and expressive materials.

5128. Printmaking. Cr. 4.

Prereq: TED 1118 or 5118. Alternate requirement for certification in art education. Studio explorations of relief, planographic, in-

taglio, and stencil processes as methods of reproduction for artistic expression, methods in those processes particularly suitable for the classroom.

5129. Visual Communications — Advanced. (4,4). Cr. 4.

Prereq: TED 2113 or teaching experience. Exhibitions, displays, lettering, layout, and technical problems in reproduction methods.

5311. Seminar in Early Childhood Education. Cr. 3-4.

Prereq: teaching experience or consent of instructor. The role of the staff in improving the quality of living and learning in educational programs for young children in nursery school, day care centers, kindergartens, and primary grades. Improved human relationships, choices for children, play as a way of learning.

5313. Creative Teaching in the Elementary School (ELD 5313). Cr. 4.

The process of creativity with implication for the educational experiences and opportunities of teachers and children. Ways and means of developing children's talents and abilities.

5314. Urban Resources for Children's Social Education. Cr. 3-4.

Instructional resources in an urban culture. Field trips, conferences with resource people, investigation of instructional materials. Implications for school curriculum of urban ecology and urban renewal, business and industry, the future of Detroit as a seaport, the city as an educational and cultural center, conservation of human resources, and government and its agencies.

5315. Workshop — Creative Arts for Today's Children. Cr. 6.

Prereq: teaching experience. Promotion of understanding and skills in the creative arts; music, literature, and the visual and dramatic arts as they relate to each other and to other types of learning. Laboratory experience including observation of children at work in the arts.

5316. Social Studies Curriculum for Elementary Schools (ELD 5316). Cr. 4.

Prereq: TED 4316, teaching experience or consent of instructor. Intellectual, social, and personal development through social studies. Professional development experiences for teachers.

5317. Language Arts. Cr. 4.

Prereq: consent of adviser. Content of elementary school language arts programs. Procedures, materials and organizational patterns.

5318. Teaching of Reading. Cr. 4.

Prereq: consent of adviser. The reading process; procedures, materials and organizational patterns used when teaching reading in elementary school classrooms.

5319. Seminar in Adult Relationship in the Preschool (FAC 0586). Cr. 3.

Prereq: senior or graduate standing or consent of instructor. A psychosocial approach to the adults in the young child's life: staff, parents, and community.

5321. Modern Languages in the Elementary School. Cr. 4-6.

Nature and function of language. Psychology of language learning. Cooperative study of methods and materials. Role of foreign language in total elementary curriculum.

5323. The Art of Storytelling (L S 5498). Cr. 4.

Prereq: TED 3321 or 5326 or consent of instructor. Selection of appropriate literature and materials for storytelling; guided practice in the art.

5325. Teaching of Elementary School Mathematics. Cr. 4.

Prereq: consent of adviser. Content of elementary school mathematics programs. Procedures, materials and organizational patterns.

5326. Survey of Recent Literature for Children (ELD 5326) (L S 5518). Cr. 4.

Survey of literature for children of pre-high school age. Current trends in the rise of contemporary children's literature.

5329. Field Study and Seminar in Teaching. Cr. 4.

Prereq: consent of adviser. Advanced seminar in the study of teaching to be taken concurrently with initial part-time or full-time teaching. Teaching experiences of seminar members are used for developing means of self-examination of teaching.

5403. Education of Exceptional Children. Cr. 4.

Organization, philosophy and history, development and structure; special provisions and their significance for each of the several types of exceptional children; remedial procedures in care, treatment, education and rehabilitation.

5404. Speech Improvement in the Classroom. Cr. 3.

Identification of the speech characteristics and needs of teachers and pupils; deviations from normal speech; integration of speech improvement in classroom activities.

5405. Introduction: Education of Visually Handicapped Children. Cr. 2.

Prereq: TED 5403 or consent of instructor. History, programs, principles in education and guidance of visually handicapped children. Observations required.

5411. Basic Theories, Programs, and Practices in Mental Retardation. Cr. 4.

Prereq. or coreq: TED 5403 or consent of instructor. Characteristics, classifications, etiologies; evaluation of mildly and seriously retarded; social organization and programs for care, treatment, education, and rehabilitation.

5412. Learning Disabilities of Exceptional Children. Cr. 4.

Prereq. or coreq: TED 5403 or consent of instructor. The behavioral and educational study of children with inferred neurological dysfunctions. Consideration of educational and psychological modalities of intervention.

5413. Teaching Mentally Retarded Children. Cr. 3.

Prereq: TED 5411 or consent of instructor; coreq: student teaching and seminar for students in initial preparation. Specialized teaching approaches, principles and development of curriculum and instructional aids for retarded children, K-12.

5414. Teaching Trainable Retarded Children. Cr. 3.

Prereq: TED 5413 or consent of instructor; coreq: student teaching and seminar for students in initial preparation. Specialized teaching approaches; principles and development of curriculum and instructional materials; teaching aids for severely retarded (trainable) children. Observations required.

5420. Pathology of the Organs of Vision. Cr. 4.

Prereq: TED 5405 and consent of adviser. Anatomy, physiology of vision; lectures by ophthalmologists on pathologies and correction of refractive errors; clinical observations; coordinated with procedures for teaching the visually handicapped.

5421. Teaching Partially-Seeing Children. Cr. 3.

Prereq: TED 5403 and 5405. Organization and program planning;

pupil evaluation, teaching procedures, curriculum adaption, pupil guidance; observations in eye clinics and participation in laboratory classes.

5422. Braille Techniques and Practice I. Cr. 2.

Prereq: TED 5405 and consent of instructor. Credit only upon satisfactory completion of Teacher Education 5424. Acquisition of competency in reading, writing, teaching braille; preparation and transcription of braille; competency in Nemeth Code in preparation for student teaching of the blind.

5423. Teaching Blind Children. Cr. 3.

Prereq: TED 5422. Pupil evaluation and placement; program planning; specialized curriculum, educational media, teaching procedures; development of mobility in blind children.

5424. Braille Techniques and Practice II. Cr. 2.

Prereq: TED 5422. To be taken in the quarter following Teacher Education 5422.

5425. Therapeutic Care of Crippled Children. Cr. 4.

Prereq: TED 5403 and consent of adviser. Required of students preparing to teach crippled children. Clinical study and observations; therapeutic care and treatment of the crippled in school; emphasis on cerebral palsied; coordination with medical specialists and agency programs.

5426. Teaching Crippled Children in School, Home, and Hospital. Cr. 4.

Prereq: TED 5425 and consent of adviser; coreq: student teaching and seminar. School organization and educational provisions for crippled and tubercular children in home, hospital, and school; emphasis on cerebral palsied.

5430. (SPH 0530) Introduction to Speech Pathology. Cr. 4-5.

Development of speech correction in education; classification, basic principles, methods of diagnosing and treating speech deficits; clinical observations required for majors only.

5431. (SPH 0531) Clinical Methods in Speech Pathology. Cr. 5.

Prereq: TED 5430 or consent of instructor. Procedures and materials for clinical treatment of articulatory, language, rhythm, and voice deficits of organic and nonorganic causation. Laboratory required.

5432. (SPH 0508) Phonetics. Cr. 4.

Multisensory study of the sounds of the English language with emphasis on acoustic, physiologic, and kinesiologic approaches.

5433. (SPH 0509) Anatomy and Physiology of the Speech Mechanism. Cr. 4.

Prereq: consent of instructor. General science of normal speech; anatomy and physiology of respiration, phonation, resonance and articulation.

5434. (SPH 0536) Clinical Practice in Speech Pathology. Cr. 2 (6 required).

Prereq: TED 5431 and written consent of instructor. Supervised experience in applying methods of diagnosis and treatment of clinical cases.

5435. (SPH 0535) Theories of Normal Language Development. Cr. 4.

Prereq: consent of instructor. Theories of normal language development in children including those postulated by Mysak, Lenneberg, Piaget, and Chomsky.

5436. (SPH 0532) Normal Language Acquisition and Usage. Cr. 4.

Prereq: consent of instructor. Language development in children and the associated areas of emotional and motor development; language stimulation techniques and programs.

5437. (SPH 0537) Introduction to Black Speech Patterns. Cr. 4.

Prereq: TED 5435 or consent of instructor; ANT 0520 recommended. For majors in speech pathology and science and majors in other areas of special education requiring a detailed comprehensive view of black speech and language patterns within a speech pathology model; prepares speech clinician to manage the problems of children with black dialect in speech correction classes.

5439. (SPH 0539) Language Pathology: Etiology and Diagnosis. Cr. 4.

Prereq: consent of instructor. Descriptions, etiology, methods of diagnosis of language disorders in children.

5440. (SPH 0540) Introduction to Audiology (AUD 0540). Cr. 4.

Prereq: consent of instructor. Introduction to the physics of sound, anatomy of the hearing mechanism, audiometry, habilitation and rehabilitation of the hearing handicapped.

5441. (SPH 0544) Practicum in Audiology (AUD 0544). Cr. 2-4 (Max. 6).

No graduate credit for audiology majors. Prereq: TED 5440 or 5451 and written consent of instructor. Supervised training and practice for clinical certification. I—Audiometry. II—Speech Reading and Auditory Training.

5445. Observations in Deaf Education. Cr. 2.

Prereq: TED 5452. Observation and written reports in clinical or instructional programs for children with impaired hearing.

5446. Tutorial Experience in Deaf Education. Cr. 3.

Prereq: TED 5454. Observation, written reports, and seminar in clinical or instructional programs for children with impaired hearing.

5450. Introduction to Education of the Deaf. Cr. 3.

Prereq: TED 5440. History, programs, and principles in the education and guidance of the hard-of-hearing and the deaf. Fundamentals of teaching speech, language, and academic subjects; development of speech and language. Observations of community services for the deaf required.

5451. (SPH 0542) Speech Reading and Auditory Training (AUD 0542). Cr. 3.

Prereq: TED 5440 and 5450. Principles of teaching speech reading and utilizing auditory training and amplification systems for the hard-of-hearing and deaf. Observations and practice required.

5452. Speech and Language for the Deaf. Cr. 3.

Prereq. or coreq: TED 5451. Principles and various methods of teaching speech and language to the deaf; functional anatomy of the speech mechanism; the grammar of the English language; observations and demonstrations.

5453. Teaching the Deaf — Speech. Cr. 3 (6 required).

Prereq: TED 5452; must be elected for two successive quarters. Principles, demonstrations, and practice in the systematic development of speech with deaf children.

5454. Teaching the Deaf — Language. Cr. 3 (6 required).

Prereq: TED 5452; must be elected for two successive quarters.

Principles, demonstrations, and practice in the systematic development of language with deaf children.

5455. Teaching the Deaf — Speech Reading and Auditory Training. Cr. 3.

Prereq: TED 5454. Methods, principles, demonstrations in teaching speech reading and auditory training to hard-of-hearing and deaf children.

5456. Teaching the Deaf — Academic School Subjects I. Cr. 2.

Prereq: TED 5455; coreq: TED 5457 and student teaching seminar. Principles, demonstrations and practice in teaching academic school subjects to deaf and hard-of-hearing children. Social studies, science, spelling.

5457. Teaching the Deaf — Academic School Subjects II. Cr. 2.

Prereq: TED 5455; coreq: TED 5456 and student teaching seminar. Principles, demonstrations and practice in teaching academic school subjects to deaf and hard-of-hearing children. Reading, mathematics.

5521. Methods and Materials of Instruction — Secondary School Mathematics. Cr. 4.

To be elected in the quarter before student teaching, or in the spring quarter if student teaching is to be elected in the fall quarter. Place of mathematics in secondary school; major concepts of secondary school mathematics; methods and instructional materials; classroom administration; modern trends.

5526. (MAT 0536) Mathematics for Elementary School Teachers I. Cr. 4.

Credit in College of Education only. Discussion and development of the mathematics on which much of the current elementary school mathematics curriculum is based. Sets and Venn diagrams; systems of numeration; prime numbers, least common multiple, greatest common divisor; number systems, inverses, identity, associativity, commutativity, and distributivity; modular arithmetic; notions of ratio and percentage.

5527. (MAT 0537) Mathematics for Elementary School Teachers II. Cr. 4.

Prereq: TED 5526. Credit in College of Education only. A survey of the real number system, algebraic operations, systems of linear equations, theory of equations.

5528. (MAT 0548) Mathematics for Junior High School Teachers I. Cr. 4.

Prereq: TED 5527. Credit in College of Education only. Basic concepts of Euclidean geometry; trigonometric solution of triangles.

5529. (MAT 0549) Mathematics for Junior High School Teachers II. Cr. 4.

Prereq: TED 5528. Credit in College of Education only. Trigonometry and analytical geometry.

5531. Advanced Study of Secondary English Teaching. Cr. 4.

Prereq: directed teaching. Critical review of current issues in the teaching of English based on preparation and internship experience. Identification of continuing education needs for each candidate.

5535. (L S 5493) History of Children's Literature. Cr. 4.

Prereq: consent of adviser. See Library Science 5493.

5541. (SPH 0606) Issues in Secondary Speech Education. Cr. 3.

Prereq: regular or student teaching, SPH 0506. Key issues in

speech education. Inner-city speech, behavioral objectives, bi-dialectalism.

5554. Assessment and Issues in Modern Language Curriculum. Cr. 4-6.

Prereq: directed teaching. Critical review of methods and materials based on internship or teaching experience. Evaluation of tests and courses of study.

5561. Science Experiences in the Elementary Curriculum. Cr. 4.

Prereq: majors in elementary school science, students in elementary education with group major in science or in-service teachers. Role of learning in science in the elementary school curriculum, objectives, plans of organization for learning, resource materials. Overview of balanced program. Experiences with appropriate experiments, field trips, reference materials, audio-visual resources.

5563. Professional Course — Biological Sciences in the Elementary School. Cr. 4.

Prereq: TED 3561 or 5561. Significant biological principles, generalizations and understandings with relation to their use with children. Appropriate learning activities; experiments, field trips, reference materials, audio-visual resources.

5564. Professional Course — Physical Sciences in the Elementary School. Cr. 4.

Prereq: TED 3561 or 5561. Significant principles, generalizations and understandings in the physical sciences with relation to their use with children. Appropriate learning activities including experiments, field trips, reference materials, audio-visual resources.

5565. Horticulture for Students of Occupational Therapy. Cr. 4.

Use of plant materials as therapy for physical and mental illness. Practical experience in growing, propagating, and arranging plants. The selection and development of horticultural activities appropriate for special patient groups, such as the emotionally disturbed, the blind, the spastics, and the pediatric and geriatric cases.

5566. Methods and Materials of Instruction in Secondary School Science I. Cr. 4.

Role of science in the secondary curriculum. Problems and techniques of teaching science in the secondary schools; objectives, planning, laboratory experiments, demonstrations, directed study, student projects, text and reference materials, audio-visual resources, evaluation.

5567. Field Course in Natural Science I. Cr. 4.

Field and laboratory study of the relationships between plants and animals and their physical environment in the fall. The out-of-doors as a learning laboratory, techniques of teaching in the out-of-doors, and planning and evaluating school field experiences.

5568. Field Course in Natural Science II. Cr. 4.

Field and laboratory study of ecological communities in the spring. Out-of-classroom study as a means of extending classroom learnings through firsthand experiences.

5569. Methods and Materials of Instruction in Secondary School Science II. Cr. 4.

Prereq: TED 5566. Problems of selecting and organizing teaching-learning materials in secondary school science. Development of illustrative instructional units. Resources for professional growth of science teachers; professional literature and organizations.

5761. (ELD 5761) Educational Technology (L S 5491). Cr. 4.

Principles of performance-based instructional decision making applied to the selection, utilization and evaluation of instructional

materials and equipment; for large group, small group, independent study and individualized instructional techniques.

5762. (ELD 5762) Instructional Materials Workshop (L S 5512). Cr. 2-4 (Max. 4).

Prereq: TED 5761 or consent of instructor. Design and development of packages of projected and non-projected instructional devices and materials such as film-strips, slide-tape systems, 8mm single concept films, and overhead projector transparencies, audio-tapes and video-tapes. Topics to be announced in Schedule of Classes.

5925. Theory and Practice in Teaching and Learning I. Cr. 4-12.

Prereq: admission to teacher education program. Offered for S and U grades only. Assessment of individual learning behavior, media in learning, instructional group organization, ecological study of behavior.

5926. Theory and Practice in Teaching and Learning II. Cr. 4-16.

Prereq: TED 5925 and consent of adviser. Offered for S and U grades only. Continuation of Teacher Education 5925.

5927. Theory and Practice in Teaching and Learning III. Cr. 4-16.

Prereq: 5926 and consent of adviser. Offered for S and U grades only. Continuation of Teacher Education 5926.

6010. Field Studies in Education. Cr. 2-12 (Max. 12).

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

6014. Local School Curriculum Planning. Cr. 2-8 (Max. 16).

Prereq: teaching experience and consent of adviser. For classroom teachers and teacher educators. Consideration of local problems in elementary and secondary school programs. Planning for better teaching and learning.

6016. Communication, Popular Culture and the Curriculum (L S 7518). Cr. 3-6.

Concepts of communication from varied disciplines; newspapers, magazines, films, radio, television. Place of instruction in observing, viewing, listening in curriculum, K-12. Individual projects involving mass media materials and their application in classroom.

6055. Multidisciplinary Methods and Materials for Teaching the Disadvantaged. Cr. 3-12 (Max. 16).

Prereq: admission to a teacher education program and consent of instructor. Analysis, demonstration, and assessment of methods, techniques and materials used by interns and in-service teachers of the disadvantaged. Micro-teaching and field settings.

6110. Art and Science in Education. Cr. 4-6.

Prereq: teaching experience or consent of instructor. A laboratory-lecture class in which content is a direct growth of field trips.

6111. Curriculum — Problems and Design. Cr. 4.

Prereq: TED 4019 or teaching experience. Art education as part of the total school curriculum. Purposes, content, development of meaningful sequences.

6117. Design in Fibers — Advanced. Cr. 4.

Prereq: TED 5117. Continuation of Teacher Education 5117.

6120. Light, Sound, Space and Motion — Advanced. Cr. 4.

Prereq: TED 5119. Advanced study of light media and sound as an art form.

6121. Puppetry and Related Arts — Advanced. Cr. 4.

Prereq: TED 5121. Continuation of Teacher Education 5121.

6123. Modeling and Pottery — Advanced. Cr. 4.

Prereq: TED 5123. Development of personal aesthetics, skills, and insights into ceramics as a learning medium. Informal instruction; self-direction essential.

6313. Remedial Instruction in the Basic School Subjects (ELD 6313). Cr. 4.

Prereq: teaching experience. Diagnosis, treatment, and prevention of learning difficulties in reading, arithmetic, spelling, handwriting, language, and the content areas in the elementary school. Emphasis on overcoming learning difficulties within the regular classroom.

6314. Analysis, Selection, and Use of Literature for Children (L S 6514). Cr. 4.

Prereq: TED 5326 or consent of instructor. Analysis of the literary and extra-literary factors that affect children's experiences with fiction and non-fiction.

6401. Problems in Special Education. Cr. 2-8 (Max. 12).

Prereq: teaching experience and consent of instructor. For teachers, supervisors, and administrators. Seminars and workshops dealing with problems in educating handicapped children in elementary and secondary programs.

6402. Educating Intellectually Superior, Creative, and Talented Children. Cr. 3.

Prereq: 6 credits in psychology or special education. Individual differences, characteristics, identification, development, curriculum adaptations, teaching procedures.

6403. Education of the Disabled Student in the Secondary School. Cr. 3.

Prereq: special education major and one special education methods course or consent of instructor. Specialized instructional and guidance practices in the education and vocational preparation of mentally retarded, emotionally disturbed, and physically disabled youth in the secondary school.

6420. Orientation and Mobility: Visually Handicapped Children. (2,1). Cr. 3.

Prereq: TED 5403, 5405, or consent of instructor. Orientation and mobility methods for blind and partially seeing children, including a review of basic research in sensory perception relevant to orientation of the visually handicapped to the physical environment.

6430. (SPH 0630) Speech Pathology. Cr. 4 (Max. 12).

Prereq: TED 5430 or consent of instructor. I—Voice and Articulation; II—Aphasia and Cerebral Palsy; III—Stuttering and Cleft Palate. Topics to be announced in Schedule of Classes.

6432. (SPH 0632) Organization and Methods in Speech Pathology. Cr. 4.

Prereq: consent of instructor. Class organization, management, materials, teaching aids, techniques.

6433. (SPH 0608) Advanced Phonetics. Cr. 4.

Prereq: TED 5432. Correlation of physiology of the production of speech and the acoustic characteristics of the sounds of English.

6434. (SPH 0609) Electroacoustics of Speech. Cr. 4.

Prereq: consent of instructor. A lecture-laboratory consideration of electroacoustics as applied to speech and audition.

6436. (SPH 0636) Advanced Clinical Practice in Speech Pathology. Cr. 2-4 (Max. 8).

Prereq: TED 5431, 6430, or consent of instructor. Advanced clinical practice in the diagnosis and treatment of one or more of five speech pathologies: I—stuttering; II—aphasia; III—cleft palate; IV—cerebral palsy; V—voice.

6439. (SPH 0634) Speech of the Laryngectomee. Cr. 4.

Prereq: consent of instructor. Basic principles and practices for developing and improving the speech of the laryngectomee.

6442. (SPH 0640) Anatomy of the Ear (AUD 0640). Cr. 4.

Prereq: graduate standing or consent of instructor. Required of first-year graduate students in audiology and education of the deaf. Functional anatomy, physiology, and neurology of the hearing mechanism; study of research and basic auditory correlates.

6452. Education of the Deaf — Diagnosis and Appraisal. Cr. 3.

Prereq: graduate standing or consent of instructor. Evaluation techniques used in placement, education, and guidance of the deaf and hard-of-hearing; psychological, social, educational, and vocational problems associated with deafness.

6453. Education of the Deaf — Teaching Aids. Cr. 3.

Prereq: TED 6452 or consent of instructor. Special apparatus, devices, techniques, and educational approaches in current use for teaching deaf and hard-of-hearing children and adults.

6454. Education of the Deaf — Multiple Handicaps. Cr. 3.

Prereq: TED 6453 or consent of instructor. Teaching deaf and hard-of-hearing children with emotional, symbolic, motor, and visual problems. Demonstrations and observations.

6455. Teaching Communication Skills to the Language Disordered (SPH 0638). Cr. 3.

Prereq: TED 5439 or written consent of instructor. Problems of primary language disorders in children; diagnosis; systematic approach to the development of speech and language, educational methods, and evaluation.

6504. Core Curriculum Methods and Materials. Cr. 3-9 (Max. 9).
Practical help for block-time teachers in junior and senior high schools.

6505. (ELD 6505) The Middle and Junior High School. Cr. 3-9 (Max. 9).

Modern trends and issues in the curriculum and administration of the junior high school and middle school. Problems of organization, instruction, guidance, orientation.

6523. Teaching Secondary Mathematics I. Cr. 3-4.

Prereq: teaching experience. First course in a two-quarter sequence to be followed by Teacher Education 6524. Major ideas of junior high school general mathematics and senior high school general mathematics; methods and materials of instruction; promising current practices; related research.

6524. Teaching Secondary Mathematics II. Cr. 3-4.

Prereq: TED 6523 or consent of instructor. Continuation of Teacher Education 6523.

6525. Field and Laboratory Work in Secondary Mathematics. Cr. 4.

Criteria for selection of teaching aids; construction and use of field and laboratory devices.

6526. Special Problems in Mathematics Education (ELD 6526). Cr. 2-8 (Max. 16).

Prereq: teaching experience. Current issues and trends; areas of neglected content; curriculum proposals; related research. Topics to be announced in Schedule of Classes.

6527. Seminar I. Cr. 2.

Prereq: 8 hours of education courses; coreq: TED 7902. Application and examination of concepts relevant to internship.

6528. Seminar II. Cr. 2.

Prereq: TED 6527; coreq: TED 7902. Application and examination of concepts relevant to internship.

6529. Seminar and Project III. Cr. 4.

Prereq: TED 6528; coreq: TED 7902. Continuation of previous seminars plus completion of the project related to teaching junior high school mathematics.

6530. Developing Literacy. Cr. 3-8 (Max. 8).

Prereq: teaching experience or consent of instructor. Intensive analysis of problems in language arts education. Teaching reading in urban schools, K-12; psycholinguistics in education, K-12; development of composition skills, literature, K-12. Topics will be announced in Schedule of Classes.

6531. Language and Reading Programs for Children and Adolescents. Cr. 3-16.

Limited to students in M.A.T. or special programs. Analysis and development of the methods and programs for teaching reading, speech and writing (K-12). A review of the research and literature on language problems of young people.

6532. Literature for Adolescents (L S 6512). Cr. 3-6.

Prereq: directed or regular teaching. Standard for evaluating adolescent literature. Selection of literature for individual pupils in relation to interest and reading ability. Use of classroom collections. Techniques for helping pupils read poetry, drama and fiction.

6534. Problems in Teaching Writing. Cr. 3-6.

Prereq: directed or regular teaching. Study of various approaches: integration with literature, grammar, topics, group, individualized. Concern for motivation, instruction, evaluation. Relation of composition to cognition and perception, critical thinking, self-awareness.

6535. Teaching Literature in Secondary Schools. Cr. 4.

Prereq: teaching experience, directed teaching, or consent of instructor. Structure of poetry, fiction, and drama in relation to aesthetic, social, and psychological needs of secondary school pupils. Relationship of teaching methods to curriculum patterns.

6537. Linguistics and Learning. Cr. 3-6.

Prereq: directed or regular teaching or consent of instructor. Intensive review of current linguistic theory; introduction to psycholinguistics; application for teaching grammar, usage, and composition; development of teaching materials.

6539. Black Culture and the Secondary School English Curriculum. Cr. 3-6.

Prereq: directed teaching or teaching experience. Examination of Afro-American culture with special emphasis on literature. Selection and utilization of materials for the secondary school classroom.

6541. Foundations of Teaching Reading in Secondary Schools. Cr. 4.

Prereq: teaching experience. Psychological and physiological aspects of reading. Standardized and informal diagnostic and evaluation instruments. Interrelationships among specific reading skills.

6542. Remedial Reading in Secondary Schools. Cr. 4.

Prereq: TED 6541 or equiv. Classroom methods in teaching remedial reading, selection and evaluation of instructional materials, use and evaluation of mechanical aids; review of research, relation of teacher to clinician.

6543. Reading in the Content Areas. Cr. 3-6.

Practical approach to the problems of reading disability as they affect the subject matter teacher in social studies, science, mathematics and other areas.

6554. Workshop in Multi-media Teaching of Language. Cr. 3-6.

Preparation and use of scripts and tape recordings in language laboratory. Selection of slides, films, phonograph records, programmed materials in modern languages.

6555. Studies in Foreign Language Teaching. Cr. 2-12.

Prereq: consent of adviser. Special workshops, short-term seminars, cooperative research teams, and topical foreign language studies.

6561. Curriculum Planning in Elementary and Secondary School Science. Cr. 3-8 (Max. 16).

Prereq: teaching or supervisory experience. Curriculum study experiences for in-service teachers, supervisors, principals and coordinators in developing science curricula. Goals and objectives of a K-12 program, selection of appropriate teaching-learning experiences and materials, evaluation and preparation of curriculum materials, preparation and evaluation of activities.

6562. Recent Advances in the Teaching of Science in the Elementary School. Cr. 4.

Prereq: TED 3561 or teaching experience. Recent innovations and trends in the teaching of elementary school science. Students examine and work with new materials developed for elementary school science programs.

6563. Recent Advances in the Teaching of Science in the Junior High School. Cr. 4.

Innovations and improvements in junior high school science as part of a K-12 science curriculum. Exploration of appropriate areas of study, development and selection of learning activities and materials, laboratory experiences in selected areas.

6564. Recent Advances in the Teaching of Physical Sciences. Cr. 4.

Recent curriculum studies and research in the teaching of physical sciences. Current problems in teaching of physics, chemistry, the earth sciences. Experiences with appropriate laboratory experiments and equipment, new textual and reference material, new audio-visual resources and evaluation procedures.

6565. Recent Advances in the Teaching of Biological Sciences. Cr. 4.

Recent curriculum studies and research in the teaching of the biological sciences. Implications for improvement of classroom and laboratory teaching. Experiences with appropriate laboratory experiments and equipment, new textual and reference material, new audio-visual resources and evaluation procedures.

6571. Methods and Materials of Instruction in Secondary Social Studies. Cr. 4.

Prereq: for M.A.T. students or by consent of chairman. Founda-

tions of social studies instruction, social studies curriculum, methods of teaching in junior and senior high school.

6573. Social Studies Curriculum — New Perspectives. Cr. 1-12 (Max. 12).

Prereq: teaching experience. For in-service teachers. Investigation of new developments in the social sciences and trends in the social studies curriculum. Interdisciplinary approaches to curriculum problems. Topics to be announced in Schedule of Classes.

6762. (ELD 6762) Workshop in Developing Performance-Based Instruction. Cr. 2-4 (Max. 4).

Prereq: TED 5761, 5762 or consent of instructor. Principles of behaviorally planned instruction applied to the design, development, implementation and evaluation of behaviorally based instruction activities and materials.

6763. (ELD 6763) Techniques of Individualized Instruction. Cr. 4.

Individually paced course in how to organize and manage individualized instruction.

6925. Teaching Internship and Colloquia I. Cr. 6-16.

Prereq: TED 5927. Offered for S and U grades only. Internship in teaching and colloquia with emphasis on assessment of individual learning behavior, media of instruction, ecological study of behavior, organization of instructional groups.

6926. Teaching Internship and Colloquia II. Cr. 2-16.

Prereq: TED 6925 and consent of adviser. Offered for S and U grades only. Continuation of Teacher Education 6925.

6927. Teaching Internship and Colloquia III. Cr. 8-16.

Prereq: TED 6926 and consent of adviser. Offered for S and U grades only. Continuation of Teacher Education 6925.

7010. Field Studies. Cr. 2-8 (Max. 8).

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

7011. Survey of Educational Systems in Developing Areas of the World (TBF 7011). Cr. 4.

Prereq: TED 5011 or ELD 5011, or consent of adviser or instructor. Educational programs in Asia, Latin America, and Africa; influence of European and American school systems. Local cultural and economic factors. Community development, UNESCO and other aid programs. Orientation for study and research abroad.

7015. Cooperative Planning in the Classroom (ELD 7015). Cr. 3-6 (6 required).

Prereq: consent of instructor. Must be taken for two consecutive quarters. Principles and practices learned by direct experiences and studies in student-teacher planning. Direct experience in group problem solving.

7016. Research and Directed Study. Cr. 2-8 (Max. 8).

Prereq: written consent of adviser and graduate officer.

7017. Introductory Master's Seminar. Cr. 4.

Prereq: admission to a master's degree program in Teacher Education Division.

7019. Terminal Master's Seminar and Essay or Project. Cr. 2-4 (4 required).

Prereq: consent of adviser.

7111. Advanced Graduate Problems. Cr. 4-12 (Max. 12).

Prereq: consent of instructor. Pursuit of specific problems in depth

Laboratory hours coordinated with regularly scheduled classes in area of study.

7311. Problems in Early Childhood Education (ELD 7311). Cr. 4.
Prereq: teaching experience or consent of instructor. Current objectives, innovations, controversies, and research in educational programs for young children in nursery school, day care centers, kindergartens, and primary grades. Philosophical, psychological, and sociological bases for change. Projects based on interests and problems of students.

7312. Functions of Literature for Children in the Elementary School Curriculum (L S 7511). Cr. 4.

Prereq: TED 6314 or consent of instructor. Function of fiction and non-fiction in developing and supporting the elementary school curriculum.

7313. Issues in Elementary Education (ELD 7313). Cr. 4.

Prereq: teaching experience. Emerging trends in curriculum, content, and instructional materials, and their implications for elementary school teachers and administrators. Review of the current literature and research with direct application to elementary school problems.

7314. The Linguistics of Reading (ELD 7314). Cr. 4.

Prereq: teaching experience. The structure of language as related to the reading process and the teaching of reading.

7315. Teaching and Supervision of Reading in the Elementary School (ELD 7315). Cr. 4.

Prereq: teaching experience. Development of a reading program for the elementary school. Emphasis on new trends in reading instruction and the problems involved in the organization, administration, and improvement of current reading programs.

7325. Supervision and Advanced Teaching Studies in Elementary School Mathematics (ELD 7325). Cr. 4.

Prereq: teaching experience and a methods course in mathematics. Recent trends in the psychology and teaching of elementary school mathematics. Role of mathematics in contemporary life and the school curriculum, organization of a valid elementary mathematics program, psychology of learning as applied to mathematics, interpretation of this psychology into actual classroom procedures, examination of new programs, new developments in teaching and new instructional materials.

7326. Social Studies Developments. Cr. 1-12 (Max. 12).

Prereq: social studies teaching experience. Current and developing programs in social studies including rationale, purposes, teaching strategies, materials of instruction, and means of evaluation of learning. Topics to be announced in Schedule of Classes.

7327. Current Developments in Elementary Education. Cr. 4-12.

Topics to be announced in Schedule of Classes.

7401. Organization and Administration of Educational Programs and Services for the Handicapped and Gifted (ELD 7813). Cr. 3.

Prereq: consent of instructor. Professional problems; standards and procedures; references to history, development, philosophy, legal provisions, rules and regulations; major developments and trends at federal, state and local levels; services of other organizations and agencies.

7402. Psycho-Educational Information for Teachers of Emotionally Handicapped Children. Cr. 3-4.

Prereq: TED 5412 or consent of instructor. Philosophies, etiology,

diagnostic categories, and current programs and models in day school and residential settings for emotionally disturbed and socially maladjusted children and youth.

7403. Psycho-Educational Management and Curricula for the Emotionally Disturbed. Cr. 3-4.

Prereq: TED 7402 or consent of instructor. Required for teachers preparing to teach emotionally handicapped children. Curriculum and program development, special methodologies, techniques of management, and procedures in day school and residential settings for emotionally disturbed children and youth. Prevailing views, current issues, and research.

7404. Psycho-Education Intervention and Acting Out Phenomenon. Cr. 3-4.

Prereq: TED 7402 or consent of instructor. Orientations of teachers of the emotionally disturbed and ancillary personnel to techniques of intervention with acting out children and youth.

7405. Seminar in the Emotionally Disturbed. Cr. 3-4.

Prereq: TED 7403 or consent of instructor. Taken concurrent with or after in-patient psychiatric practicum. Case study, the interdisciplinary approach, interpretation of current psychological and psychiatric techniques, educational and therapeutic relevancy of case information as applied in the practicum experience.

7408. Practicum with the Emotionally Disturbed or Socially Maladjusted. Cr. 2-16 (Max. 30).

Prereq: consent of instructor. Special laboratory experience of educational work in an interdisciplinary treatment setting with emotionally disturbed children or adolescents.

7415. Educational Diagnosis and Treatment in Mental Retardation. Cr. 4.

Prereq: TED 5413 or consent of instructor. Specific diagnostic and educational approaches to motor, perceptual, and cognitive disabilities of the retarded. Study of practical programs and theoretical systems of rehabilitation at both elementary and secondary levels.

7427. Recent Trends in Educating Visually Handicapped Children. Cr. 3.

Prereq: baccalaureate degree; initial qualification and experience in educating visually handicapped children. Advanced seminar and workshop for in-service teachers, administrators, and supervisors educating the visually handicapped. Research findings; experimental and recommended methods; materials; equipment; visual aids; evaluation.

7430. (SPH 0736) Internship in Speech Pathology. Cr. 2-4 (Max. 12).

Prereq: consent of instructor. Advanced professional experience in clinical speech pathology.

7431. (SPH 0738) Diagnosis of Speech and Language Problems. Cr. 4 (Max. 12).

Prereq: consent of instructor. Clinical practice in diagnosis; referrals to medical specialists; planning, training and treatment procedures of clinical cases. Required of special education master's degree candidates in speech.

7433. (SPH 0733) Clinical Practice in Language Pathology. Cr. 2-4 (Max. 6).

Prereq: SPH 0638 or TED 6455 and written consent of instructor. Supervised experience in application of methods of diagnosis and treatment of clinical language cases.

7434. (SPH 0734) Dynamic Analogies. Cr. 4.

Prereq: written consent of instructor. Analogies between electrical, mechanical rectilinear, mechanical rotational and acoustical systems.

7435. (SPH 0735) Advanced Anatomy and Physiology of the Speech Mechanism. (2,4). Cr. 4.

Prereq: SPH 0509 or TED 5433 and written consent of instructor. The anatomy and physiology of speech; consideration of current literature and dissection.

7437. (SPH 0737) Special Research Projects in Communication Disorders and Sciences. Cr. 4.

Prereq: consent of instructor. Discussion of research design and implementation; design and conduct of research projects with emphasis on student preparation for conducting master's and doctoral research.

7446. Directed Study in Audiology. Cr. 1-4 (Max. 8).

Prereq: written consent of adviser and graduate officer.

7505. (ELD 7505) Modern Trends in Secondary Education. Cr. 4.
See Education Leadership 7505.

7508. (ELD 7508) Student Activities in Secondary Schools. Cr. 4.
See Education Leadership 7508.

7521. Advanced Studies in Teaching Secondary Mathematics I. Cr. 4.

Prereq: mathematics major or minor or consent of instructor, teaching experience. Fundamental concepts of algebra for a modern secondary school mathematics program; current trends and experimental programs; related research; methods and materials of instruction.

7532. Special Problems in the Teaching of English. Cr. 4-12.

Prereq: teaching experience; consent of instructor. Application of modern theories in classroom settings. Advanced experimental teaching or experience in immediate supervision of beginning teacher.

7552. Special Problems in Foreign Language Teaching. Cr. 4-6.

Prereq: consent of adviser. Application of modern theories in classroom teaching. Advanced experimental teaching, or experimentation in supervision of beginning teachers.

7553. Linguistics in Foreign Language Classroom. Cr. 3-6.

Prereq: consent of instructor. Relation of the work of theoretical and applied linguistics to the goals and techniques of foreign language teachers.

7554. Culture as the Basis for Foreign Language Teaching. Cr. 3-6.

Prereq: consent of instructor. The examination and development of materials and techniques for employing culture as the basis for foreign language teaching.

7555. Advanced Workshop in Modern Foreign Language Teaching. Cr. 3-6.

Prereq: TED 7553, 7554 or consent of instructor. Development, production and evaluation of innovative techniques for modern foreign language teaching.

7577. Instructional Processes in Secondary Social Studies. Cr. 4.

The identification, analysis, and application of instructional pro-

cesses in social studies: inquiry, climate, individualization, discussion tactics, instructional resources.

7578. Organization of Learning Experiences in Secondary Social Studies. Cr. 4.

Sources and nature of social studies objectives, promising learning experiences, and curricular organization. Issues in the use of new curricular patterns.

7768. (ELD 7768) Designing Simulation Systems for Instruction. Cr. 4.

Prereq: consent of instructor. See Education Leadership 7768.

7818. (ELD 7818) Supervision of Instruction. Cr. 4.

Prereq: teaching experience. See Education Leadership 7818.

7851. Problems and Methods of Teaching in the Community College I. Cr. 3-4.

Prereq: consent of adviser. Objectives, materials, trends, and techniques in teaching specified subjects on community college level.

7852. Student Teaching on the Community College Level. Cr. 3-4.

Prereq. or coreq: TED 7851 and written consent of adviser. Offered for S and U grades only. Supervised teaching for those preparing to teach on the community college level.

7853. Problems and Methods of Teaching in the Community College II. Cr. 3-4.

Prereq: TED 7851. Continuation of Teacher Education 7851.

7902. Internship and Seminar. Cr. 2-16 (Max. 27).

Prereq: written consent of adviser and admission to student teaching. Offered for S and U grades only. To be elected by graduate students serving internships as part of special teacher education programs; includes regular seminars in which teaching methods in various fields are demonstrated and practiced.

7904. Role of the Team Leader. Cr. 2-4 (Max. 12).

Prereq: consent of instructor and selection as a team leader in a special teacher education program. An examination of the role and responsibilities of team leaders in the teacher corps or master teacher in related programs.

7921. Advanced Theory and Practice in Teacher Education. Cr. 8-16.

Prereq: consent of instructor. Problems in supervision of student teachers with attention to advanced study and practice in assessment of individual learning behaviors, media in learning, instructional group organization, ecological study of behavior, learning systems.

7927. Research Seminar in Teaching and Learning I. Cr. 3.

Prereq: TED 6927 and consent of adviser. Emphasis on individual learning behaviors, media of instruction, ecological study of behavior, organization of instructional groups.

7928. Research Seminar in Teaching and Learning II. Cr. 3.

Prereq: TED 7927 and consent of adviser. Continuation of Teacher Education 7927.

7929. Research Seminar in Teaching and Learning III. Cr. 3.

Prereq: TED 7928. Continuation of Teacher Education 7928.

8011. Supervision of Student Teachers. Cr. 4.

Prereq: teaching experience. Program of teacher-education and of student-teaching as it operates to further the development of pre-service teachers. Research and recent developments in the field.

8012. Curricular Innovations in Selected Secondary Areas (ELD 8012). Cr. 4.

Curricular innovations in selected secondary areas—English, mathematics, science, social studies.

8013. Basic Principles of Curriculum and Instruction (ELD 8013). Cr. 4.

Theoretical bases for curricular development and instructional innovation. Their application to the tasks of the curriculum maker explored as various educational positions are taken and examined.

8017. Advanced Seminar. Cr. 2-4 (Max. 12).

Prereq: admission to education specialist or doctoral program and consent of adviser. Topics to be announced in Schedule of Classes.

8019. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: consent of adviser.

8310. Problems in Reading (ELD 8310). Cr. 4.

Prereq: teaching experience and consent of adviser. Problems related to the organization, supervision, administration, and evaluation of regular, remedial, and experimental reading programs. Emphasis on advances in technology and their effect on reading instruction in the classroom and clinic.

8313. Teaching and Supervision of Language Arts (ELD 8313). Cr. 4.

Prereq: teaching experience. Development of a language arts program for the elementary school. Emphasis on new trends and the problems involved in organizing and improving programs of instruction in spelling, handwriting, oral and written language, literature, and reading.

8316. Applied Linguistics in Elementary Education (ELD 8316). Cr. 4.

Prereq: consent of instructor. Applications of linguistics, psycholinguistics, sociolinguistics and other interrelated disciplines to elementary education. Applications to the language arts curriculum; interrelationships between language, thought and learning.

8402. Practicum—Internship in Educating Exceptional Children (ELD 8402). Cr. 2-10 (Max. 10).

Prereq: consent of adviser. Professional experiences in university or in state and local programs in special education; based on student's objectives of college teaching or administration and supervision.

8407. Teacher-Consultant of Exceptional Children (ELD 8407). Cr. 4.

Prereq: TED 5403, teaching experience or consent of adviser. Professional role of special education teacher-consultant, K-12. Special problems, including adjusted school programming, curriculum, materials, teaching techniques; educational, personal, and vocational guidance.

8435. (SPH 0835) Seminar in Language Pathology. Cr. 4.

Prereq: written consent of instructor. In-depth analysis of existing literature in language pathology.

8436. (SPH 0809) Research in Speech Science. Cr. 4.

Prereq: consent of instructor and adviser.

8437. (SPH 0839) Seminar in Speech Pathology. Cr. 4 (Max. 16).

Prereq: TED 6430 or consent of instructor. I—stuttering; II—

aphasia; III—cleft palate; IV—neuromuscular disorders; V—voice disorders; VI—articulation; VII—interdisciplinary speech pathology. Topics to be announced in Schedule of Classes.

8438. (SPH 0838) Seminar in Speech Science. Cr. 4 (Max. 16).

Prereq: written consent of instructor. I—vocal mechanisms; II—embryology; III—neuromuscular bases; IV—feedback mechanisms. Four credits in each topic. Topics to be announced in Schedule of Classes.

8456. (SPH 0844) Research Seminar in Deafness (AUD 0844). Cr. 3-4 (Max. 8).

Prereq: consent of instructor. Methods and procedures in experimental study of deafness and the deaf; literature, apparatus, supervised research projects.

8457. (SPH 0849) Advanced Seminar in Deafness. Cr. 3-4 (Max. 8).

Prereq: consent of instructor.

8521. Advanced Studies in Teaching Secondary Mathematics II. Cr. 4.

Prereq: mathematics major or minor and teaching experience. Role of geometry and trigonometry in secondary school mathematics; selection of major concepts; development of postulational thinking; teaching procedures emphasizing modes of thinking in mathematics; modern trends.

8537. Advanced Seminar in English Education (ELD 8537). Cr. 3-12.

Prereq: consent of instructor. Primarily for students beyond the master's degree. Emphasis on theory underlying the teaching of English in secondary schools. Topics include curricular innovation, philosophies related to English teaching, language, literature, composition, and communication. Topics to be announced in Schedule of Classes.

8538. Research Seminar in English Education (ELD 8538) Cr. 4-6.

Prereq: consent of adviser; TBF 7663 or equiv. Intensive survey of recent research in English education. Construction of research models relevant to problems in the teaching of English. Identification of problem and development of research proposals.

8564. Role of Science in General Education: K-12 (ELD 8564). Cr. 4.

Literacy in science for all citizens as an objective of the K-12 program. Critical survey of the objectives, content and methods of modern science against the background of the history of teaching sciences in American schools. For classroom teachers, supervisors, administrators who expect to provide leadership in improving science education in the schools.

8565. Recent Research in Curriculum Development and Instruction in Science (ELD 8565). Cr. 4.

Analysis of recent research in science education, K-12, and consideration of implications for curriculum designing in science and for improvement of classroom teaching. Consideration of research tools needed by teachers of science.

8574. Social Studies Program in Grades K-12 (ELD 8574). Cr. 4.

Prereq: consent of instructor. Purposes, organization, and trends in social studies, K-12. Current problems, curriculum development, evaluation, uses of appropriate resources. Nature of the social studies.

8851. Problems in Teacher Education. Cr. 4.

Prereq: consent of adviser. Practices in selection, guidance, cur-

ricula, improvement of instruction, and in-service programs for teacher-education institutions.

8852. Student Teaching on the College Level. Cr. 2-4.

Prereq: satisfactory completion of final qualifying examination for Ed.D. or Ph.D., consent of adviser. Observation of instruction and supervised teaching experience for those preparing to teach college subjects.

9016. Research and Directed Study. Cr. 2-8 (Max. 8).

Prereq: written consent of adviser and graduate officer.

9017. Doctoral Orientation Seminar. Cr. 4.

Comprehensive interpretation of crucial aspects of Doctor of Education degree program: official requirements and targets, examinations, dissertation proposal; acquaintance with college departmental staffs, their scholarly and research perspectives and horizons.

9018. Doctoral Thesis Seminar. Cr. 3-9 (Max. 9).

Prereq: consent of adviser. Primarily arranged to encourage processing of doctoral dissertations in progress by staff assistance and mutual analysis and constructive suggestions by seminar members.

9019. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., max. 30; Ph.D., 45 required).

Prereq: consent of adviser.

9407. Advanced Seminar. Cr. 3 (Max. 9).

Prereq: specialist or doctoral standing in special education and consent of adviser. Major problems and trends.

Interdisciplinary Teacher Education (ITE)

3355. Professional Education: Theory and Practice I. Cr. 6-16.

Prereq: admission to the Teacher Education Division. Human growth and learning; structure, function, and purpose of educational institutions in society; methods and materials of instruction appropriate to elementary and secondary schools.

3356. Professional Education: Theory and Practice II. Cr. 6-16.

Prereq: ITE 3355. Continuation of Interdisciplinary Teacher Education 3355.

3357. Professional Education: Theory and Practice III. Cr. 6-16.

Prereq: ITE 3356. Continuation of Interdisciplinary Teacher Education 3356.

3358. Professional Education: Theory and Practice IV. Cr. 2-16.

Prereq: ITE 3357. For students needing additional study or for those who desire to raise their level of competency. Continuation of Interdisciplinary Teacher Education 3357.

3359. Professional Education: Theory and Practice V. Cr. 2-16.

Prereq: ITE 3358. For students needing additional study or for those who desire to raise their level of competency. Continuation of Interdisciplinary Teacher Education 3358.

4355. Internship and Seminar I. Cr. 8-16.

Prereq: written consent of program adviser and admission to student teaching. Offered for S and U grades only. Directed teaching in schools at level for which students are preparing for certification. Seminars for discussion of educational issues.

4356. Internship and Seminar II. Cr. 2-16.

Prereq: ITE 4355. Offered for S and U grades only. Directed teaching in schools at level for which students are preparing for certification. Seminars for discussion of educational issues.

4357. Professional Education: Theory and Practice VI. Cr. 2-16.

Prereq: ITE 4355 and consent of instructor. For students needing additional study of methods and materials of instruction or deeper understanding of educational issues.

Vocational and Applied Arts Education (VAE)

1171. Materials and Processes — Wood. Cr. 4.

Development of products suitable for industrial arts programs involving hand and machine operations, forming, fastening and finishing.

2171. Materials and Processes — Sheet Materials. Cr. 4.

Prereq: VAE 1171. Development of products suitable for industrial arts programs involving lay-out, cutting, forming, joining, and finishing of various sheet materials.

3171. Materials and Processes — Multi-Media. Cr. 4.

Prereq: VAE 2171. Development of products suitable for industrial arts programs involving lay-out, cutting, forming, assembling, and finishing of materials appropriate for school laboratories.

4141. Methods and Materials of Teaching Homemaking and Family Living. Cr. 4.

Prereq: VAE 5191, 5195; coreq: VAE 4143. Offered for S and U grades only. Basic principles, methods of instruction, and organization of material in homemaking education.

4143. Home and Family Living Seminar. Cr. 4.

Prereq: VAE 5191, 5195; coreq: VAE 4141. Open only to family life education majors. Offered for S and U grades only. Emphasis on different facets of the homemaking and family living curricula according to the Vocational Education Act of 1968 and the suggested Michigan Vocational Plan. Experiences with children in selected classrooms which typify these trends in curriculum development.

4192. Teaching Internship: Secondary Schools. Cr. 2-16.

Prereq: admission to intern teaching; coreq: VAE 4193. Offered for S and U grades only. Intern teaching in secondary schools; integration of theory and practice.

4193. Teaching Internship Seminar. Cr. 4.

Prereq: admission to intern teaching; coreq: VAE 4192. Open only to majors. Offered for S and U grades only. Developing and sharing concepts, methods, and techniques necessary for a competency based program in intern teaching. Curriculum area and joint vocational and career education sessions.

4196. Directed Study. Cr. 2-9 (Max. 9).

Prereq: written consent of VAE administrative committee.

5131. Business Education Principles and Practicum. Cr. 3-4.

Prereq: consent of adviser; satisfactory skill in typing and one other office occupation. Offered for S and U grades only. Role of business education in the total secondary curriculum. Current and projected curriculum planning and implementation.

5133. Practicum in Teaching Office Occupations. Cr. 3-4.

Prereq: satisfactory skill in typing and one other office occupation, VAE 5191, 5195; coreq: VAE 5134. Offered for S and U grades only. Emphasis on how to determine and develop needed minimum skills for beginning office occupations. Methods, materials and equipment for teaching selected office occupation subjects.

5134. Practicum in Teaching Typewriting. Cr. 3-4.

Prereq: VAE 5191, 5195, and typewriting proficiency; coreq: VAE 5133. Offered for S and U grades only. Analysis and development of materials and techniques for teaching business typewriting and related clerical occupational skills.

**5144. Family Life Education Workshop or Seminar.
Cr. 2-16 (Max. 16).**

Experiences related to specific issues, problems, or concerns in family life education.

5147. Teaching Family Financial Management. Cr. 4.

Prereq: SS 0101, 0192 or equiv. Economic, social, and cultural conditions and needs relating to personal and family finance. Emphasis on financial planning by the consumer and its relevant supporting concepts.

5148. Child Development and Family Relationships. Cr. 4.

Prereq: PSY 0198, admission to senior college, family life education major. Parent-child relationships and growth through family living. Directed experience in College of Education Nursery School.

5151. Distributive Education Principles and Practicum. Cr. 3-4.

Prereq: consent of adviser; satisfactory skill in typing and distributive occupations. Offered for S and U grades only. Role of distributive education in the secondary curriculum. Current and projected curriculum planning and implementation.

**5153. Business Education Practicum — Distributive Occupations.
Cr. 3-4.**

Prereq: VAE 5191, 5195, satisfactory skill in typing and distributive occupations; coreq: VAE 5134. Offered for S and U grades only. How to determine and develop needed minimum skills for beginning distributive occupations. Methods, materials, and equipment for teaching selected distributive occupation subjects.

5170. Experiences for Technical Development. Cr. 2-12 (Max. 12).

Prereq: written consent of VAE administrative committee. For extending technical competence in the major teaching field. Attendance at industrial service schools, Wayne State University Applied Management and Technology Center, or other appropriate field experience.

***5187. Methods and Materials of Instruction I. Cr. 4.**

Prereq: VAE 5191, 5195; coreq: VAE 6187. Practices and techniques for (1) organizing needed teaching plans and aids for a specific teaching situation, (2) securing needed data regarding students, (3) organizing a class, (4) developing essential records, and (5) establishing a safety program.

5191. Practicum in Principles of Teaching Vocational and Career Education Programs. Cr. 4.

Open only to majors. Practicum for developing concepts and techniques for implementing professional commitment, performance, objectives, relevant teaching materials, and effective delivery systems in vocational and applied arts education. Each student will select a curriculum area for depth investigation.

*For vocational certification when taught or directed by an approved vocational teacher educator.

5195. Foundations of Teaching and Learning. Cr. 4-8.

Prereq: VAE 5191. Open only to majors. Study and application of selected principles of human learning, basic assessment, evaluation, and teaching techniques, as well as community and technological influences on teaching. Competency based instruction, objectives available from department offices.

**6133. Special Problems in Business Education. Cr. 1-10 (Max. 18).
(Max. 10, M.Ed.; max. 18, other advanced degree programs.)**

Prereq: business teaching experience, consent of adviser. Special workshops and short term seminars in business subjects.

6135. Principles and Applications of Teaching Business Data Processing. Cr. 2-10 (Max. 10).

Prereq: business teaching experience or consent of adviser. Open only to students in business education curriculum. Designed for administrators and teachers. Principles, applications, and implications of electronic data processing for education. Development of introductory data processing units for use in schools and acquaintance with basic equipment.

6136. Field Studies in Business Education. Cr. 2-12.

Prereq: written consent of VAE administrative committee. Supervised professional study requiring substantial periods of time in business education in local schools or in community, state, nation or foreign countries; observation, collection and analysis of data.

**6141. Survey of Home Economics Related Occupational Courses.
Cr. 4.**

Prereq: teaching experience. Experiences specifically related to teaching occupational training courses; exploration of various curricula patterns; identifying content and procedures; criterion referenced materials.

**6143. Adult and Parent Education in Home and Family Living.
Cr. 3.**

Prereq: PSY 0198, SOC 0506 or 0550. Principles of family living related to adjustments in later stages of family cycle.

6144. Family Life Education in Elementary School. Cr. 3.

Prereq: teaching experience. Blending of aspects of family living with curricular content for grades K-6.

6145. Secondary School Program in Family Living. Cr. 3.

Prereq: teaching experience. Overview of family life education in the schools; content, methods, problems relating to family living.

6148. Homemaking Curricula. Cr. 4.

Prereq: teaching experience. Economic, technical and social changes as a basis for curriculum development in family life education.

**6149. Practicum in Homemaking and Family Life Education.
Cr. 3-12 (Max. 12).**

Prereq: consent of adviser. Opportunity provided to work with individuals in the various stages of the life cycle.

**6153. Special Problems in Distributive Education. Cr. 1-10
(Max. 18). (Max. 10, M.Ed.; max. 18, other advanced degree programs.)**

Prereq: business teaching experience, consent of instructor. Special workshops and short term seminars in distributive subjects.

6155. Principles and Applications of Teaching Business Data Processing. Cr. 2-10 (Max. 10).

Prereq: business teaching experience or consent of instructor. Open

only to students in distributive education curriculum. See Vocational and Applied Arts Education 6135.

6156. Field Studies in Distributive Education. Cr. 2-12.

Prereq: written consent of VAE administrative committee. Supervised professional study requiring substantial periods of time in distributive education in local schools or in community, state, nation or foreign countries; observation, collection and analysis of data.

6170. Experiences for Technical Development. Cr. 2-12 (Max. 12).

Prereq: written consent of VAE administrative committee. See Vocational and Applied Arts Education 5170.

6176. Modern Industrial Processes. Cr. 4.

Field trips to selected industries to study the industrial functions of research, development, planning for production, unit and mass producing of an industrial product; service of industrial products.

***6187. Methods and Materials of Instruction II. Cr. 4.**

Prereq: VAE 5191, 5195; coreq: VAE 5187. Practices and techniques for (1) teaching units in industrial education with group and individualized methods; (2) locating, selecting, and using educational materials.

6191. Planning for Vocational and Career Education. Cr. 4.

Prereq: completion of continuing certificate requirements for VAE students or consent of instructor. Demonstration of the principles and implementation techniques of career education in a vocational or applied arts curriculum as viewed on a programmatic basis.

6192. Cooperative Education — Field Study. Cr. 2-16 (Max. 18).

Prereq: vocational and applied arts major and curriculum area approval. Field experience to correlate with the teaching of vocational and applied arts subjects.

6193. Special Problems in Vocational Education. Cr. 1-4.

(Max. 8, M.Ed.; max. 12, Ph.D.).

Prereq: vocational teaching experience, consent of adviser. Special workshops and short term seminars in vocational subjects.

***6194. Planning and Management of School Laboratories. Cr. 4.**

Architectural details, lay-out principles; visual, auditory and atmospheric control and comfort; circuitry. Procurement, material handling, budgets and accounts, maintenance of equipment and laboratories.

6195. Planning and Organizing Instruction. Cr. 4.

Planning and organizing instruction for a course of study: justification, approaches for content, performance objectives, instructional resources, planning and evaluating units.

6196. Objective Referenced Evaluation in Vocational Education. Cr. 4.

Prereq: VAE 5195 or consent of instructor. Open only to vocational and applied arts teachers and administrators. Principles and procedures of objective-referenced evaluation and assessment as incorporated into an accountability model of instruction.

6197. Field Study — The Current Economic Scene and Career Education. Cr. 4 (Max. 8).

Prereq: graduate standing. Through prepared interchange with business and industry, job skills are analyzed and technological innovations are appraised. Utilization by the teacher of the re-

sources of business and industry in classroom instruction. On-site inspections, outside speakers.

6198. Managing Vocational Instruction and Facilities. Cr. 4.

Prereq: vocational teaching experience or consent of adviser. Open only to vocational and applied arts teachers and administrators. Principles of management as related to the operation of vocational classroom and laboratory facilities; budget, instructional efficiency and teacher liability.

6199. Coordination of Cooperative Occupational Education. Cr. 4.

Philosophy and objectives of educational programs that provide for work experience. Student selection, on-the-job and in-school instruction, placement, coordination, advisory committees, and administration of such programs.

7141. Family Life Education Seminar. Cr. 3-6 (Max. 6).

Prereq: VAE 5191, 5195; coreq: VAE 7142. Open only to M.A.T. students in family life education. Different functional aspects of the homemaking and family living curricula according to the Vocational Education Act of 1968 and the Michigan Vocational Plan. Experiences with children in selected classrooms which are appropriate for an M.A.T. intern.

7142. Methods and Materials of Teaching Homemaking and Family Living. Cr. 4.

Prereq: VAE 5191, 5195; coreq: VAE 7141. Open only to M.A.T. students in family life education. Basic principles, methods of instruction, and organization of material in home economics and family life education.

7144. Evaluation in Homemaking and Family Life Education. Cr. 3.

Prereq: VAE 6148 or teaching experience. Techniques in assessing adequacy of homemaking and family living school programs in terms of current issues and trends. Evaluation as a technique for guiding, learning and appraising progress.

***7185. Evaluation in Industrial Education. Cr. 4.**

Development and administration of teacher-made tests for measuring educational achievement. Paper and pencil, object, manipulative-performance, and published tests. Test evaluation and improvement through item analysis.

7190. Field Study in Career and Vocational Educational Programs. Cr. 2-9 (Max. 9).

Philosophy, objectives, nature, and scope of training programs sponsored by industry, business, and labor. Organized field trips to survey and study selected programs in Detroit area.

7192. Teaching Internship: Secondary Schools. Cr. 2-16.

Prereq: admission to intern teaching; coreq: VAE 7193. Open only to M.A.T. students. Offered for S and U grades only. Intern teaching in secondary schools; integration of theory and practice.

7193. Teaching Internship Seminar. Cr. 4.

Prereq: admission to intern teaching; coreq: VAE 7192. Open only to M.A.T. majors in vocational and applied arts education. Offered for S and U grades only. Developing and sharing concepts, methods, and techniques necessary for a competency based program in intern teaching. Curriculum area and joint vocational and career education sessions.

7194. Research. Cr. 2-9 (Max. 9).

Prereq: written consent of VAE administrative committee and graduate officer. Intensive review of reported research studies in

*For vocational certification when taught or directed by an approved vocational teacher educator.

Vocational and Applied Arts Education. Methods and implementation of research.

7195. Administrative and Supervisory Functions in Vocational Education. Cr. 4.

Activities related to administration and supervision of vocational education on local level. Federal, state, and local relationships. Legislation affecting local and state programs.

7196. Directed Study. Cr. 2-12 (Max. 12).

Prereq: written consent of VAE administrative committee, and consent of graduate officer. Offered for S and U grades only. Investigation of selected aspects of vocational and applied arts education.

7197. Introductory Master's Seminar. Cr. 6.

Prereq: admission to a master's program in a vocational and applied arts education curriculum area. Research procedures applied to essays, theses, technical reports, and graduate projects. Review of selected research.

7198. Current Issues and Trends. Cr. 4 (Max. 8, M.Ed. and M.A.T.; max. 12 credits other advanced degree programs).

Place, function, and evolving concepts of vocational and practical arts education. Economics, sociological, psychological, and technical factors.

7199. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: VAE 7197 and 80 percent of graduate credits in program completed. Required of students in vocational and applied arts education electing Plans B or C to complete master's program.

8136. Honors Projects in Business Education. Cr. 2-9 (Max. 9).

Prereq: written consent of VAE Administrative Committee for advanced graduate students.

8156. Honors Project in Distributive Education. Cr. 2-9 (Max. 9).

Prereq: written consent of VAE Administrative Committee for advanced graduate students.

***8187. Seminar in Industrial Education. Cr. 4-8 (Max. 8).**

Prereq: consent of adviser. Leadership training in recognizing, selecting, and studying current issues in industrial education. Scholarly papers and related resource materials developed and discussed.

***8195. Curriculum Development Procedures. Cr. 4.**

Prereq: consent of adviser and instructor. Acquiring competence and insights needed for giving leadership to development of curriculum materials for vocational and practical arts education.

8198. Vocational Education in Community Colleges. Cr. 4.

Philosophy, objectives, nature, and scope of vocational oriented programs at community college level. Identification of need and plans for implementation. Federal, state, and local relationships.

8199. Terminal Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: written consent of VAE administrative committee. Required of students in Vocational and Applied Arts Education electing Plan A to complete master's program.

9196. Research. Cr. 2-12 (Max. 12).

Prereq: written consent of VAE administrative committee and graduate officer.

9199. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., max. 30; Ph.D., 45 required).

Prereq: written consent of VAE administrative committee.

* For vocational certification when taught or directed by an approved vocational teacher educator.

THEORETICAL AND BEHAVIORAL FOUNDATIONS

Office: 321 Education

Head: John J. DeWitt, Ed.D.

Professors

Edward G. Adamek, Ed.D., Walter J. Ambinder, Ph.D., George D. Barahal, Ph.D., Arthur Brown, Ed.D., J. Frank Campbell, Ed.D., Louis Cantoni, Ph.D., Nathaniel Champlin, Ed.D., Abraham Citron, Ph.D., Juanita Collier, Ph.D., Claire Irwin, Ed.D., August Kerber, Ed.D., Jacob S. Kounin, Ph.D., George E. Leonard, Ed.D., Frederick Neff, Ed.D., Leon T. Ofchus, Ph.D., Mildred Peters, Ph.D., William Wattenberg, Ph.D., Robert E. Wurtz, Ed.D.

Associate Professors

Guy T. Doyal, Ph.D., Sandra Lyness, Ph.D., Donald Marcotte, Ph.D., John J. Pietrofesa, Ed.D., Nancy K. Schlossberg, Ed.D., Maureen Sie, Ph.D., Howard Splete, Ph.D., Paul W. Sullivan, Ph.D., John Vriend, Ed.D.

Assistant Professors

Arnold B. Coven, Ed.D., Jannar Davis, Ph.D., John A. George, Ph.D., Henderson Hendrix, Ed.D., Stephen B. Hillman, Ph.D., Alan Hoffman, Ed.D., Delbert Hopkins, M.Ed., Barry S. Markman, Ph.D., Robert V. Miller, Ph.D., Richard Weiss, Ph.D., Maurice O. White, Ph.D.

Instructor

Michael Oidick, M.A.

PURPOSES

The Division of Theoretical and Behavioral Foundations includes degree programs in School and Community Psychology and Educational Psychology, Educational Evaluation and Research, Educational Guidance and Counseling, Educational Sociology, History and Philosophy of Education, and Vocational Rehabilitation Counseling. The division is designed to facilitate a realization of the following aims:

- (1) to integrate the educational experiences and course offerings provided in the several programs;
- (2) to perform a service function in meeting the needs of those enrolled in other divisions within the College;
- (3) to provide degree and specialist programs for those who are majoring in a particular field of the division;
- (4) to provide students with an opportunity to study those aspects of educational thought and practice that cut across subject-matter lines and are truly "foundational";
- (5) to formulate programs looking toward the development of new combinations of specialties as in (a) counseling-psychol-

ogy, (b) pupil personnel-coordinators in school systems, (c) utilization of theoretical and behavioral foundations in teacher education, (d) underlying philosophical premises of educational programs and practices; and

- (6) designing multi-disciplinary experiences for students.

Programs leading to the Master of Education, Master of Arts, Doctor of Education, and Doctor of Philosophy degrees and the Education Specialist Certificate are offered under the guidance of this division.

See preceding section on graduate degrees for information regarding areas of specialization for each degree and basic degree requirements. Consult appropriate divisional adviser for detailed information about areas of specialization.

SCHOOL AND COMMUNITY PSYCHOLOGY

The program in School and Community Psychology is designed to develop the competencies necessary for approval as School Psychological Diagnostician at the master's level and as School Psychologist at the Education Specialist and doctoral levels, or as psychologists to serve in community mental health facilities.

The prospective student should recognize that this program involves, in addition to course requirements, clinical experience in school and agency settings dealing primarily with children. Retention in the program and recommendation for approval depends upon demonstrated clinical skill as well as on the student's academic achievement. The staff will try to arrange for a one year psychological internship in either a school system or a community mental health facility.

In addition to completing all procedures for admission to the Graduate Division, each applicant will complete a form obtained from the division, complete a testing program, and be interviewed by an admissions committee. All admissions requirements must be completed before the first day of January.

EDUCATIONAL PSYCHOLOGY

The master's program in educational psychology is designed for classroom teachers and other educators for the purpose of deepening their knowledge of the application of psychological principles to school settings. It is *not* a substitute, in whole or in part, for the program in school and community psychology described above.

Students will be admitted twice each year. They will be required to progress through a sequence of courses specifically scheduled each quarter for majors in educational psychology. Immediately after admission to the program, students must consult with their major adviser as to preparation of a plan of work which will include the major sequence, college requirements, and electives. Students are advised against enrolling in any educational psychology courses prior to official admission to the program.

In addition to completing all the admission procedures of the Graduate Division and the prerequisites of the College

of Education Division of Academic Services, a student seeking admission to the Master of Education program in educational psychology must be interviewed by a departmental admissions committee.

The doctoral degree program general requirements are described in a preceding section. Please consult with appropriate adviser for specific program information and requirements.

Students seeking admission to a doctoral program who do not hold approval as school diagnosticians or school psychologists in Michigan, must first be admitted to the program in School and Community Psychology and make substantial progress in it before applying to the doctoral program. Students having the teaching of educational psychology as their objective must hold a teacher's certificate before being officially admitted. All applicants for admission must have completed a minimum of forty-five hours in psychology or educational psychology or hold a Master's degree in either educational psychology or psychology.

EDUCATIONAL EVALUATION AND RESEARCH

Evaluation and Research offers concentrated programs for building careers and leadership positions in educational evaluation and research. Students may concentrate in evaluation and measurement; statistics and computer technology; research methodology and experimental design.

Students who have already successfully achieved backgrounds, training, and experience in substantive disciplines of education and in non-education fields and who are interested in becoming more proficient in scientific inquiry; research strategies; evaluation and appraisal of studies, models and designs; and multivariate analysis, especially in conjunction with computer facilities are afforded such opportunities in these programs. For optimum effective preparation internships in research will be arranged upon request. The staff is available to students and faculty for consultation in research design and multivariate analysis.

Consult an appropriate adviser for specific requirements.

EDUCATIONAL GUIDANCE AND COUNSELING

Educational Guidance and Counseling, through its graduate programs, offers students the opportunity to gain information, knowledge, and skills in the field of guidance and counseling. Educational areas include counseling at the elementary, junior, and senior high school levels as well as college student personnel work. Non-educational programs are geared for working with adults and in agencies.

In accordance with State regulations, this department has been approved to offer programs leading to recommendation for Michigan school counseling endorsement at the K-8, 7-12, and K-12 levels. Please consult the guidance and counseling statement for current information.

The Master of Education degree program is for those enrollees who expect to become school counselors or school guidance workers and for those who wish to broaden or improve their teaching competency by including guidance skills.

The Master of Arts degree program is mainly offered for those who expect to become college student personnel workers or for those who are engaged in guidance and counseling in non-school settings such as community agencies, employment agencies, churches or religious organizations, and industry.

The Education Specialist Certificate program is intended for those who are presently counselors or college student personnel workers and who want to improve their competence in these areas. It is recommended that applicants have had some experience in guidance or counseling agencies and prior course work in guidance and counseling or have taken prerequisite courses before applying.

Doctoral programs, the Ph.D. and Ed.D., with a specialization in guidance and counseling are provided as preparation for positions of leadership and teaching.

Effective July, 1971, for the endorsement of a valid teaching certificate to include counseling, the Michigan State Board of Education requires that the applicant shall have successfully completed an approved counselor education program of not less than eighteen semester (twenty-seven quarter) hours of credit. The M.Ed. degree is the normal route for teachers seeking a counseling endorsement to follow. Acceptance into the Master of Education degree program does not guarantee a recommendation for counseling endorsement upon completion of the degree.

Please consult with an appropriate adviser regarding available sub-specializations in guidance and counseling and for program information and specific requirements.

EDUCATIONAL SOCIOLOGY

The programs in Educational Sociology have as a central purpose the preparation of students with a knowledge of the concepts, methodology, and research findings in sociology relating to the total educational enterprise in contemporary society. The formal and informal social structure of the school as well as the broad processes of cultural transmission in society are central areas for investigation. Course work and advisement are focused on developing students who are able to apply sociological concepts and techniques to major educational problems. Considerable emphasis is placed upon shifts in power in educational decision making and upon the effects of social change on education.

HISTORY AND PHILOSOPHY OF EDUCATION

History and Philosophy of Education attempts to meet the needs of pre-service and in-service teachers, administrators, and other school personnel as well as those engaged in related professions by focusing upon the study of school and educational programs in terms of their historical roots and their philosophic adequacy. Examination of the historical and philosophic dimensions of the educational enterprise is viewed as paramount to an understanding of the aims and methods of alternative educational theories and practices.

Special attention is given to a consideration of important aspects of current life and thought in their educational bear-

ings — such as ethics, aesthetics, conflicting conceptions of human nature, questions relating to human identity, conflicts between humanism and technology, and the like.

Majors are afforded an opportunity to select from a wide range of cognate courses in fields such as music, art, history, philosophy, psychology, literature, and the social sciences. Programs also attempt to meet the needs of non-teaching candidates whose major interests lie in fields such as religion, social work, psychology, counseling, and research.

VOCATIONAL REHABILITATION COUNSELING

Vocational Rehabilitation programs prepare rehabilitation counselors for public and private rehabilitation agencies. These programs equip the student to work with young people and adults who are physically disabled, mentally retarded, emotionally ill, or socially disadvantaged. In preparing the student, emphasis is placed on developing his ability to provide clients with (1) diagnostic and remedial services, (2) vocational counseling, (3) training, and (4) placement in suitable employment.

COURSES OF INSTRUCTION¹ (TBF)

2702. Career Development, Career Options, and the University Student. Cr. 2.

Offered for S and U grades only. Identification of educationally and vocationally relevant self-characteristics: examination of fields of study and vocational opportunities; sources of further career development assistance.

3601. Introduction to Philosophy of Education. Cr. 4.

Systematic examination of leading philosophies of education.

3731. Introduction to Child Study. Cr. 4.

Prereq: introductory psychology, satisfactory health record and tuberculosis test within last six months. Introductory course in human growth and development for those who will be working with children and adolescents in educational settings.

5661. Foundations of Evaluation and Research. Cr. 3-4.

Appreciation and exploration of scientific inquiry and of essential concepts in educational research, evaluation, measurement, statistics. Procedures, models, resources for problem solving.

5701. Student Personnel Work in Higher Education (ELD 5851). Cr. 3.

Overview of guidance services appropriate for higher education. (F, W, Sp)

5707. Introduction to Guidance. Cr. 3.

No credit after TBF 6701 or 7701. Prereq: admission or pending admission to master's program in counseling. Introduction to guidance and counseling theory and practice. Survey of guidance services and their application in various settings.

5708. Group Counseling Participation. Cr. 3.

For counseling majors only. Prereq. or coreq: TBF 5707. Offered for S and U grades only. The second part of the beginning course for majors in the educational guidance and counseling master's program. Students experience membership in a counseling group. (F, W, Sp)

5731. Foundations of Educational Psychology. (3,3). Cr. 4.

Prereq: admission to M.A.T. program. Introduction to current issues in educational psychology through lecture and field laboratory experiences.

5734. Psychology of the Mentally and Physically Handicapped. Cr. 4.

Prereq: TBF 3731 or 5731 or ITE 3355. Psychology of handicapped children and adults; emphasis on etiology and diagnostic techniques, with special reference to adjustment.

5735. Psychology of the Gifted. Cr. 3.

Prereq: 6 credits in psychology. Definition, criteria and identification of gifted children. Their physical, psychological, social and emotional characteristics. Adjustment problems and educational programs.

5738. Emotional and Social Problems of the School Child. Cr. 4.

Prereq: TBF 3731 or 5731 or ITE 3355. Nature and causes of social and emotional maladjustment of school age children and youth. Role of school in emotional and character disorders. (Sp)

5740. Psychological Problems of Disadvantaged Youth. Cr. 4.

Prereq: TBF 3731 or 5731 or ITE 3355 or consent of instructor. Psychological factors which have special relevance to disadvantaged youth. Socio-psychological factors underlying educational problems of disadvantaged, such as development of self-concept, conflict in value systems and life styles of the poor. Educational implications will be developed.

5741. Mental Hygiene and Its Relation to the Problems of Education. Cr. 3-4.

Prereq: introductory course in psychology or child development or consent of adviser. Application of major concepts.

5742. Juvenile Delinquency and the Schools. Cr. 3.

Prereq: 9 credits in psychology or sociology. Causes and treatment of juvenile delinquency; the role of the school in the lives of the young people involved. Evidence as to major causative factors set forth, various programs developed for treatment or prevention discussed, actions which can be taken by school people described in terms of data as to probable effects.

5743. Mental Hygiene of Childhood and Youth I—Understanding Behavior (S W 0727). Cr. 2.

Prereq: introductory course in psychology or child development, or consent of adviser. Aspects of understanding children which are directly relevant to task of handling their behavior. Criteria for assessment of normality and health versus degree of disturbance as far as can be read from behavior observation.

5744. Mental Hygiene of Childhood and Youth II—Management of Behavior (S W 0728). Cr. 2.

Prereq: introductory course in psychology or child development, or consent of adviser. Practical approaches and implications for handling child behavior and managing groups; techniques of behavioral intervention; dynamics and issues of punishment; selection of appropriate action techniques for individuals and groups.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

5745. Child Psychology. Cr. 3.

Prereq: 8 credits in psychology or consent of instructor. Basic concepts, research findings and problems regarding children's behavior as it applies to the school and home situations.

5747. Mental Hygiene of Childhood and Youth III — Dynamics of Group Life (S W 0730). Cr. 2.

Prereq: introductory course in psychology or child development, or consent of adviser. The group as an organism; group structure and group atmosphere; group roles and leadership types; function of organization, routine, and discipline. The individual in the group; case-relevant behavior. Composition of groups; psychology of gang formation; problems of group disintegration. problem of contagion. Use of the group medium for recreational, educational, and clinical goals; techniques of group leadership.

5748. Adolescent Psychology. Cr. 3-4.

Prereq: 8 credits in psychology or consent of instructor. Basic concepts, research findings and problems regarding adolescents' behavior as it applies to the school and home situations.

5832. Psychology of Learning Disability. (3,2). Cr. 4.

Prereq: 6 credits in psychology. 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.

6083. (ELD 6083) Educational Implications of Perception. Cr. 3-4.
See Education Leadership 6083.

6471. Pre-Vocational Preparation for Emotionally, Mentally and Physically Handicapped. Cr. 4.

Rehabilitation philosophy; psycho-social factors in disability; pre-vocational evaluation and training for handicapped children and youth; problems, methods, and techniques in work adjustment programs.

6610. Field Studies. Cr. 2-12 (Max. 12).

Prereq: consent of adviser. Supervised professional study conducted in field setting.

6628. Sociology of Urban Schools (SOC 0628). Cr. 3-4.

Prereq: consent of adviser. Sociological analysis of the societal and institutional problems and processes bearing on the education of children from the various sub-cultural backgrounds found in modern urban areas. Emphasis on contemporary educational problems in the urban setting.

6636. Conflict and Controversy in Public Education: A Sociological Perspective. Cr. 3-4.

To provide an arena for open discussion and analysis of current problems in public education from a sociological point of view.

6701. The Role of the Teacher in Guidance. (3,1). Cr. 4.

Introductory survey of guidance principles, techniques, and roles, with stress on classroom application. Special attention will be given to the interdisciplinary context of an effective program.

6702. Workshop in Guidance and Counseling. Cr. 2-6 (Max. 6).

Prereq: consent of instructor. For counselors, teachers, and pupil personnel workers. Consideration of counseling and guidance issues in school, agency and community settings. Counseling, consultation, and coordination dimensions of guidance and counseling.

6704. The College Student and His Environment. Cr. 3.

Prereq: TBF 5701. Directed at the improved understanding of the

variety of student "types" and on the interaction of students and their environment. (W)

6731. Behavior Modification in the Classroom. Cr. 4.

Prereq: TBF 3731 or TED 3355; in-service teaching or consent of instructor. Primarily for classroom teachers. Introduction to the systematic application of behavior modification and operant conditioning principles in the classroom and other social settings. Acquisition of skills in identifying behavior problems, counting behavior, specifying techniques for either increasing or decreasing the frequency of behavior and evaluating results of those techniques.

6732. Practicum in Educational Psychology. Cr. 2-8 (Max. 8).

Prereq: consent of adviser and instructor. Closely supervised seminar-laboratory experiences to provide opportunities for evaluation and application of theory related to educational psychology.

6734. The Psychology of Mental Retardation. Cr. 3.

Prereq: TBF 6831 or 7841 and 9 credits in psychology. Advanced analysis of psychological problems and issues related to the mentally retarded. Classification, differential diagnosis, counseling, education, training. (Sp)

6735. The Learning Process and Programmed Instruction. Cr. 3-4.

Prereq: TBF 3731 or 5731 or ITE 3355 or consent of instructor. Linear and branching programs, development of units of instruction, computer assisted instruction and teaching machines applications. (F, W)

6764. Computer Research on Problems of Elementary and Secondary Schools. (3,1). Cr. 4.

Prereq: admission to graduate program. See Education Leadership 6764.

6831. Introduction to Psychological Testing. Cr. 4.

Prereq: 6 credits in psychology. No credit after Theoretical and Behavioral Foundations 7841. Not to be elected by majors in guidance, rehabilitation, school or clinical psychology. Designed for classroom teachers, and presents an overall view of group and individual tests used in assessment. Emphasis is placed on comprehension of the rational and interpretation of instruments and use of reports made to schools. Opportunity is provided for the examination and evaluation of materials available.

7011. (TED 7011) Survey of Educational Systems in Developing Areas of the World. Cr. 4.

Prereq: TED 5011 or consent of adviser or instructor. See Teacher Education 7011.

7470. Psychiatric Information for Rehabilitation Counselors and Teachers of Emotionally Disturbed Adolescents. Cr. 3.

Psychiatric information for rehabilitation counselors and teachers of emotionally disturbed adolescents to develop an understanding of disabling psychiatric conditions.

7471. Vocational Rehabilitation of the Handicapped (S W 0726). Cr. 4.

Prereq: consent of instructor. Organization, legislative provisions and rehabilitation procedures of physically and mentally handicapped adults. Causes, incidence, and nature of various handicaps; diagnosis, treatment, education and training, placement and follow-up.

7472. Practicum in Vocational Rehabilitation. Cr. 3-6 (Max. 12).

Prereq: admission to rehabilitation training program and consent of adviser. Supervised educational experiences in approved rehabili-

tation agency settings. Integration of professional practice with understandings and skills acquired through course work. Practicum experiences in public and private rehabilitation agencies.

7473. Rehabilitation Counseling of the Handicapped. Cr. 4.

Prereq: TBF 7471 or consent of instructor. Principles, procedures, and methods in counseling the physically and mentally handicapped; referral, interviewing, testing, determining eligibility; selecting vocational objectives, personal adjustment counseling, vocational training, selective placement and follow-up. Types of disabilities, their implications for rehabilitation with case studies.

7474. Advanced Rehabilitation Counseling of the Handicapped. Cr. 4.

Prereq: TBF 7473 or consent of instructor. Limited to students working with disabled clients. Analysis of case histories; clients' social milieu; the rehabilitation plan; community resources; counselor-client relationship. Type of counseling most appropriate in rehabilitation; principles and techniques in case recording.

7475. The Placement Process in Rehabilitation Counseling. Cr. 4.

Prereq: TBF 7471 or consent of instructor. Vocational structure of society; occupational information in rehabilitation counseling; job analysis related to employment of the handicapped; job entry requirements; selective placement procedures; follow-up techniques; case studies.

7476. Research in Vocational Rehabilitation. Cr. 2-4 (Max. 9).

Prereq: written consent of adviser and graduate officer.

7477. Seminar in Vocational Rehabilitation. Cr. 4.

Prereq: major in vocational rehabilitation and consent of instructor.

7601. Philosophy of Education. Cr. 3.

Philosophical ideas shaping educational theory and practice.

7602. History of Education in the United States. Cr. 3.

Study of the development of American education from Colonial times to the present. (Sp)

7603. Existentialism and Education. Cr. 3.

Prereq: TBF 3601 or 7601 or consent of instructor. The impact of existentialism on educational thought.

7604. History of Western Education. Cr. 3.

History of educational thought and institutions in Europe and America with emphasis on cultural backgrounds. (F)

7605. Pragmatism and Educational Theory. Cr. 3.

Prereq: TBF 3601 or 7601 or consent of instructor. Peirce, James, Dewey and other leading pragmatists; their impact on educational thought. (F)

7607. (ELD 8854) History and Philosophy of Higher Education in America. Cr. 4.

Prereq: consent of adviser. See Education Leadership 8854.

7608. Current Controversies in Education. Cr. 3.

Current controversies in education with special emphasis on value conflicts.

7616. Research and Directed Study. Cr. 2-9 (Max. 9).

Prereq: written consent of adviser and graduate officer.

7619. Terminal Master's Seminar and Essay or Project. Cr. 1-6.

Prereq: consent of adviser.

7620. The Study of Black History and Culture. Cr. 4.

Afro-American culture with emphasis on sociological implications in contemporary American society.

7621. Educational Sociology. Cr. 3-4.

Application of key sociological concepts and knowledge to educational processes in school and society. Basis for advanced specialist work in educational sociology.

7623. Intergroup Relations in Community and School. Cr. 3-4.

Dynamics of intergroup and intercultural relations; intergroup relations and ideologies seen in the context of power struggles; civil rights revolution in relation to school and community; theories of change in intergroup relations.

7661. Evaluation and Measurement. Cr. 3-4.

Principles and practices of evaluation and measurement with special focus on behavioral goals. Informal and formal evaluational strategies. Problems of self-evaluation. Logical, philosophical, and linguistic problems of evaluational methods and devices. Metrical analyses and standards. Innovations in educational assessment and accountability. Teacher-made tests.

7662. Practicum in Evaluation. Cr. 3-9 (Max. 9).

Application of principles of quantification in education; construction of examinations, scales, tests, evaluational instruments for classroom use. Rationales for improving diagnosis and appraisal of behavioral goals in curriculum and school programs. Special emphasis on student's own evaluation and measurement problems.

7663. Fundamentals of Statistics. Cr. 4.

Basic patterns of statistical inference, confidence estimation and significance testing regarding measures of averages, dispersion, correlation, and selected non-parametric statistics. Review of mathematics essential for statistics, sampling, computer use.

7664. Fundamental Research Skills. Cr. 4.

Basic skills in educational research: nomenclature, problem, theory, hypothesis formulation; bibliographical and documentary techniques; retrieval systems; development of data-gathering instrumentation; computer orientation and research uses; collection and organization of data; manuscript development; research report writing; evaluation of research studies.

7665. Computer Use in Research (ELD 7763). (3,1). Cr. 4.

Prereq: TBF 7663. Introduction to computer use in educational research with emphasis on using library programs. Fortran and other computer languages.

7701. The Role of the Teacher in Guidance. Cr. 3.

No credit after Theoretical and Behavioral Foundations 5707 or 6701. Primarily for school personnel other than counselors. Introduction to guidance with special attention to activities and opportunities of the classroom teacher.

7702. Internship in Guidance and Counseling and Student Personnel Work. Cr. 3-9 (Max. 9).

Prereq: consent of adviser and instructor during quarter prior to registration. Field supervision of counselors or personnel workers in institutional settings. Students must engage at least part-time in such roles. Seminar to discuss problems encountered in guidance and personnel programs.

7703. Introduction to Group Guidance. Cr. 3-4.

Prereq: TBF 7701 or 5707, or equiv. and graduate course in educational psychology. Methods of group study for guidance functions. Students apply such methods through the study of their own groups.

7704. Case Problems in Guidance. Cr. 3-4.

Prereq: TBF 5707 or 7701, or equiv. and graduate course in psychology. Prereq. or coreq: TBF 7841. Recognition and treatment of problems of individual pupils. Analysis of actual cases from schools and proposals for solution. Applicable to needs of classroom teachers and guidance workers.

7705. The Counseling Process. Cr. 3-4.

Prereq: TBF 7704, 7841 or equiv; prereq. or coreq: TBF 7708. Theories underlying various approaches to counseling. Practice in interviewing and analyzing interviews.

7706. Counseling and Consulting in Education. Cr. 3.

Prereq: TBF 5707. Open only to guidance majors. Theories and strategies for counseling and consulting in a school setting.

7707. Guidance in the Elementary School. Cr. 3.

Prereq: TBF 5707 or 7701, or equiv.; and consent of instructor. Principles of guidance in the elementary school; focuses on the relationship of guidance to developmental needs of children. (W, Su)

7708. Educational and Occupational Information. Cr. 3-4.

Occupational choice, its nature, determinants, and implications for education. Sources and uses of educational and occupational information. Relation of school experiences and occupations.

7709. Terminal Master's Seminar and Project in Guidance and Counseling. Cr. 4.

Prereq: 30 credits in educational guidance and counseling and consent of adviser. Consideration of guidance programs in the student's own school; such study to culminate in field study or research project.

7730. Educational Psychology for Practitioners. Cr. 6.

Open only to students admitted to school and community psychology program. An introduction to applied educational psychology designed to highlight the major thrusts in the field which have relevance for the practitioner.

7731. Advanced Educational Psychology. Cr. 4-6.

Prereq: admission to master's program in educational psychology; student should not elect any other course during the time he is taking Theoretical and Behavioral Foundations 7731. Major issues in the field are explored to provide a basis for later specialization. Major topics covered: motivation, learning, individual differences, child development, group processes. This course will normally be scheduled for the summer quarter.

7732. The Behavioral Change Process in School and Community Psychology I. Cr. 4.

Prereq: TBF 7741 and 7830. Open only to school and community psychology program students. Analysis of strategies for behavior change that are most frequently applied to children and adolescents.

7733. Cognitive Processes in Human Learning Related to School Practice. Cr. 3.

Prereq: 8 credits in psychology and consent of instructor; others by consent of instructor. To examine and analyze how cognitive processes, contents and outcomes are related to child's concept

formation, concept learning and problem solving in individual and group setting.

7734. Behavioral Change Process in School and Community Psychology II. Cr. 4.

Prereq: admission to school and community psychology program. Review of the methodology and theories of behavior and attitude change which are most applicable to adults.

7735. The Learning Process. Cr. 4.

Prereq: 8 credits in psychology. Designed to develop understanding of substantive issues involved in learning as they relate to school practice.

7736. Research in Educational Psychology. Cr. 2-12 (Max. 12).

Prereq: written consent of adviser and graduate officer.

7737. Seminar on Emotional Disturbances — Treatment and Behavioral Control (S W 0729). Cr. 3.

Prereq: written consent of instructor. Enrollment in this seminar and practicum is limited to 12. Utilization and understanding of group processes in development of personality; special attention to those processes relevant to emotional adjustment and management of individuals requiring therapy.

7738. Dynamics of Human Behavior. Cr. 3.

Prereq: 8 credits in psychology. Application of Kurt Lewin's principles of topological and vector psychology to human behavior in educational settings.

7739. Professional Seminar. Cr. 4.

Prereq: admission to School and Community Psychology Program or doctoral program in educational psychology; prereq. or coreq: TBF 8832. Orientation to school psychology, its history and current status. Consideration is given to legal and ethical problems and the role and responsibilities of the professional psychologist working in the public schools.

7740. Social Psychology of Educational Issues. Cr. 4.

Prereq: TBF 7846 and 8832. Open only to students in the school and community psychology program. Conceptual tools for school or community psychologist to function as a change agent in the social settings which influence children. Ecology and the possibilities of modifying the ecology influencing child behavior.

7741. Human Developmental Psychology. Cr. 4.

Prereq: TBF 7731. Admission to school and community psychology program. Survey of research from psychoanalytic and learning viewpoints on human development from birth to adulthood. Emphasis on school environment and community psychology practice.

7749. Terminal Master's Seminar and Essay Direction — Educational Psychology. Cr. 1-6.

Prereq: consent of adviser. Working through in-depth issues raised in Theoretical and Behavioral Foundations 7731, exploring area of student's primary interest, developing and presenting the student's essay topic.

7831. Psychology of Deviancy and Exceptionality. Cr. 5.

Admission to School and Community Psychology Program. An intensive analysis of psychopathology and behavioral disorders.

7832. Psychological Resources in the Community. Cr. 5.

Coreq: TBF 7831. Limited to students in the School and Community Psychology Program only. Students will be placed in community mental health agencies where they can observe and interact with exceptional children under supervision.

7833. Diagnostic Study of Learning Disability. Cr. 4.

Prereq: TBF 5832. Diagnosis of severe learning disability; theories of causation and methods of treatment; laboratory experience in treatment of youngsters with severe reading and other learning problems.

7834. Diagnostic Study of Learning Disability — Advanced. Cr. 4.

Prereq: TBF 7833. Emphasis on developing diagnostic skills and evaluating theoretical contributions to the field of learning disability; laboratory experience in diagnosing several youngsters with severe reading and other learning problems.

7839. Terminal Master's Seminar and Essay Direction — Clinical Psychology. Cr. 1-5.

Prereq: consent of adviser.

7841. Psychological Evaluation I. Cr. 4.

Prereq: 6 credits in psychology. Limited to majors in guidance, rehabilitation, school or clinical psychology and School of Social Work students only. Intensive overview of tests used to assess intelligence, educational achievement, personality dynamics, and vocational interest and aptitude for psychologists and counselors. Case materials.

7846. Psychological Evaluation II. Cr. 4.

Open only to students in school and community psychology program. The selection of test batteries for use in school and community settings; the development of prescriptive recommendations. Emphasis on Binet and Wechsler scales and other individual tests.

7847. Advanced Psychodiagnostics. Cr. 4.

Prereq: written consent of instructor. Closely supervised, seminar-laboratory type of experience in which students will appraise specific children, interview parents and teachers. Specialists in other fields (psychiatry, pediatrics, neurology, social work) will be brought into the total diagnostic procedure.

7849. Psychological Evaluation III. Cr. 4.

Limited to students in School and Community Psychology Program only. Introduction to administration, scoring, and interpretation of projective techniques commonly employed in clinical assessment. Rorschach, figure drawing and thematic instruments (TAT, CAT).

8601. Aesthetic Foundations of Education. Cr. 3.

Prereq: TBF 3601 or 7601 or consent of instructor. Conflicting philosophies of art as they bear upon education. (W)

8607. Seminar: Special Problems in Educational Theory. Cr. 3 (Max. 12).

Prereq: TBF 3601, or 7601 or consent of instructor. Analysis of alternative theoretical grounds for resolving educational issues and inquiry into ways of relating educational theory to practice. (Sp)

8608. Seminar: Ethics and Education. Cr. 3 (Max. 6).

Prereq: TBF 3601 or 7601 or consent of instructor. The moral and ethical dimensions of education. (W)

8619. Master's Thesis Research and Seminar — General. Cr. 4-12 (12 required).

Prereq: consent of adviser.

8621. Design and Construction of Models in Behavioral Research. Cr. 3-4.

Prereq: consent of adviser. Methods and procedures in developing research models in education and the behavioral sciences. Research in field settings and improvement of educational practices.

8626. Seminar: Socio-Cultural Analysis of Selected Educational Problems. Cr. 3-4.

Prereq: TBF 7621 or consent of instructor. Concepts, methodology, and research findings in sociology, anthropology, and social psychology utilized to analyze specific educational problems. Implications of research literature in such areas as social stratification, power structure, and cultural differences as applied to the educational process.

8628. Seminar: Educational Anthropology. Cr. 3-4.

Prereq: TBF 7621 or consent of instructor. Major cultural variables and socialization processes in literate and non-literate societies. Cross-cultural studies and their implications for the educational process.

8629. Socio-cultural Factors in Learning. Cr. 3-4.

Prereq: any graduate course in educational sociology or sociology. Construction of personality, life orientation, identity, emotion, aspiration, perception, cognition, and learning as constructed and taking place in a given culture or cultures.

8663. Advanced Problems in Measurement. Cr. 4.

Prereq: TBF 7661 or equiv. Non-statistical and statistical analysis of tests, evaluational instruments and procedures, rationales of reliability, validity, item analysis, norms, scale-units, combination of scores, errors of sampling, measurement, prediction. (W)

8664. Variance and Covariance Analysis. Cr. 4.

Prereq: TBF 7663 or equiv. Multiple, partial, canonical correlation; variance and covariance analysis: Models I and II. Statistical analysis in experimental designs: Random Blocks, Latin Squares, Graeco-Latin Squares, simple and complex factorials, confounding, fractional and split-plot designs. Supporting topics and techniques: missing observations; adjustment of means; probing the homogeneity of means and variances; study of contrasts; orthogonal polynomials and computer usage. (F, Sp)

8665. Multivariate Analyses. Cr. 4.

Prereq: TBF 7663 or equiv. Discriminant analysis, profile analysis; placement and classification problems; component and factor analysis. Supporting topics and techniques; transformation of variables, computer usage. (W)

8700. Field Study in Group Counseling. Cr. 4.

Prereq: TBF 7703 or equiv., and consent of instructor. Each member to meet with small groups of pupils of his selection two to four times weekly and make records of group and individual behavior. Members will meet in seminar to analyze developments in their groups, problems of group leadership, and techniques in adjustment of individuals through group interaction.

8701. Guidance Relationships in School and Community. Cr. 3.

Prereq: TBF 6701 or 7701 or equiv. Clarification of guidance roles and relationships within the school. Survey of community guidance resources. Cooperative possibilities between school and community agencies. (W, S)

8702. Counseling Practicum. Cr. 4-12 (Max. 12).

Prereq: admission to graduate program in guidance; TBF 7705, 7708, 7841, or equiv., and written consent of department. Supervised practice counseling in the counseling laboratory. All skills and understandings developed in guidance preparation used. Counseling competence evaluated.

8703. School Guidance Programs — Organization, Administration, and Evaluation. Cr. 4.

Prereq: TBF 5707, 6701 or 7701 or equiv., or consent of instructor

prior to registration. Purpose and place of the guidance function; human relationships and the administration of guidance programs; survey of methodology and literature in the evaluation of outcomes. (W, Su)

8704. Guidance and Counseling Seminar in Case Problems. Cr. 4.
Prereq: TBF 7704 and consent of instructor. Theory and research related to early indications of symptomatic behavior and causative factors behind serious emotional problems in children. (F)

8705. Advanced Student Personnel Work (ELD 8855). Cr. 2-3.
Prereq: TBF 5701, 6704, 7702; ELD 7855; consent of instructor. For students in student personnel work. Current issues and trends in the field; ways to assess impact of college on students; role of student personnel worker; student concerns and issues; innovative personnel programming. (Sp)

8706. Research in Guidance and Counseling. Cr. 3-9 (Max. 9).
Prereq: admission to master's or education specialist program; written consent of adviser and graduate officer.

8707. Advanced Seminar in Guidance, Counseling, and Student Personnel Work. Cr. 4 (Max. 12).
Prereq: admission to education specialist or doctoral program, or consent of instructor; course in statistics or research methods. Problems, methods, issues, and current research relating to theory and practice in the field of guidance and student personnel. (W, Sp)

8708. Advanced Educational and Occupational Information. Cr. 3-6.
Prereq: TBF 7708 or equiv., consent of instructor. For advanced students in guidance and counseling and related areas. Current trends and changes in the world of work; their implications for guidance and counseling programs. (W, Sp)

8709. Interdisciplinary Seminar in Pupil Personnel Work. Cr. 2-18.
Prereq: master's degree in guidance and counseling; admission to advanced or special program in guidance and counseling; consent of instructor. Interdisciplinary discussion of effect and implications of learning 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.

8731. Fundamental Studies in Educational Psychology I — Learning. Cr. 4.
Prereq: admission to a doctoral program or consent of instructor. Basic theoretical issues and relevant evidence in respect to learning, perception, cognition, motivation, and ability structure. Trends in thinking and research most likely to influence educational policy and teacher-education practices are focal points for intensive reading and class discussion.

8733. Fundamental Studies in Educational Psychology II — Growth and Development. Cr. 4.
Prereq: TBF 5745 or 5748 and admission to a doctoral program or consent of instructor. Contemporary issues in child growth and development related to classroom practice.

8734. Fundamental Studies in Educational Psychology III — Group Dynamics. Cr. 4.
Prereq: TBF 7738 and admission to a doctoral program or consent of instructor. Critical evaluation of researches and research methods in the field of group dynamics related to education.

8735. Fundamental Studies in Educational Psychology IV. Cr. 4-12 (Max. 12).
Prereq: one course in educational psychology in the "8000" series and consent of adviser. Advanced study of a specific area in psychology with application to educational practice. Topics to be announced in Schedule of Classes.

8739. Master's Thesis Research and Seminar — Educational Psychology. Cr. 2-12 (12 required).
Prereq: consent of adviser.

8832. Practicum in Clinical Procedures. Cr. 4-8 (Max. 8).
Open only to students in School and Community Psychology Programs. Practicum in one of the clinics cooperating with Wayne State University. Testing under supervision of the cooperating clinic. Conferences and seminars.

8833. Internship in School and Community Psychology. Cr. 1-10 (Max. 10).
Prereq: TBF 7846 and 8832. Open only to students in School and Community Psychology Program. Offered for S and U grades only. Placements in a school or community mental health agency appropriate to the student's plan of study.

8839. Master's Thesis Research and Seminar — Clinical Psychology. Cr. 1-12 (12 required).
Prereq: consent of adviser.

9601. Doctoral Seminar in Philosophy of Education. Cr. 4.
Prereq: formal admission to a doctoral program in education. For doctoral majors in other areas of concentration only. Systematic study of the field of philosophy of education.

9616. Research. Cr. 2-9 (Max. 9).
Prereq: written consent of adviser and graduate officer.

9619. Doctoral Dissertation Research and Direction — General. Cr. 1-16 (Ed.D., max. 30; Ph.D., 45 required).
Prereq: consent of doctoral adviser.

9628. Doctoral Seminar in Educational Sociology. (3,1). Cr. 4.
Prereq: formal admission to a doctoral program in education. For doctoral majors in other areas of concentration only. Student reports and discussion of the problems and implications of education.

9662. Internship in Evaluation and Research. Cr. 4-8.
Prereq: TBF 7661 or equiv.; TB 7664 or equiv.; and consent of adviser. Negotiated and supervised placement into a constructive research situation. May be taken in lieu of the specialized research techniques requirement.

9668. Advanced Research and Experimental Design. Cr. 4.
Prereq: TBF 7664 or equiv. Principles and applications of operations research. Systems analysis, linear programming; multivariate designs and experimentation. Critical studies of models and applications to educational problems; computer usage. (F, Sp)

9700. Guidance and Counseling Field Study in Group Leadership. Cr. 4-12 (Max. 12).
Prereq: TBF 8700; consent of instructor. Supervised practice in leading counseling groups, developing group counseling skills and competencies, learning alternate designs for group functioning, in-depth analysis of human behavior in small groups. Seminar and laboratory experience. (F, W, Sp)

9702. Internship in Counselor Education. Cr. 3-12 (Max. 12).

Prereq: admission to a doctoral program in guidance and counseling; consent of adviser. Purposes, objectives, materials, techniques, practices in counselor education programs. Supervised experience in various phases of the counselor education program.

9706. Research in Guidance and Counseling. Cr. 3-9 (Max. 9).

Prereq: admission to doctoral program, consent of adviser and graduate officer.

9709. Doctoral Dissertation Research and Direction in Guidance and Counseling. Cr. 1-16 (Ed.D., max. 30; Ph.D., 45 required).

Prereq: consent of adviser.

9731. Doctoral Seminar in Educational Psychology. Cr. 4.

Prereq: formal admission to a doctoral program in education. For doctoral majors in other areas of concentration only. An examination of psychological concepts relevant to the development and carrying forward of the work of the schools. (F, W, Sp)

9739. Doctoral Dissertation Research and Direction — Educational Psychology. Cr. 1-16 (Ed.D., max 30; Ph.D., 45 required).

Prereq: consent of doctoral adviser.

College of Engineering



College Offices

DeanRoom 141, Engineering Building
Associate DeanRoom 141, Engineering Building
Associate DeanRoom 136, Engineering Building
Assistant to the Dean —
Plans and ProgramsRoom 141, Engineering Building
Administrative OfficerRoom 141, Engineering Building
Manager of Administrative
ServicesRoom 327, Engineering Building
Director, Engineering
Technology4855 Fourth
Coordinator, Cooperative
EducationRoom 141, Engineering Building
Chemical Engineering and
Material SciencesRoom 128, Engineering Building
Civil Engineering667 Merrick Avenue
Electrical EngineeringRoom 306, Engineering Building
Industrial Engineering and
Operations Research632 Putnam Street
Mechanical Engineering Sciences.....667 Merrick Avenue
Research Institute for
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THE PROFESSION OF ENGINEERING

Engineering requires men and women of imagination who can plan and create. Their creations include the laser and the transistor, communication networks, automotive safety devices, and systems of missile telemetry and astronautic life support. Engineers design and simplify, refine and economize. They are pragmatists serving the needs of mankind through continual reconstruction and improvement of man's surroundings. Engineers are responsible for the design and construction of energy generating and distribution systems, air and water pollution control projects, as well as transportation systems and the vehicles required by our mobile society. From the engineers must come anti-skid devices for hard-braked automobiles, tornado-busters, fire-resistant homes, and "eyes" for the blind. The engineer's resources are an intimate knowledge of scientific laws and engineering applications, an ability to use mathematics and the high speed computer, and above all an imaginative and inquiring mind.

Engineers do not devote their attention solely to the wonders of technology. They look beyond the perfection of their inventions and conceptions to consider the societal impact of what they do. For example, engineering which is solely concerned with mass production may reap economic gain at the expense of diminishing employment opportunities. In a related instance, consideration only for functional design can lead to the proliferation of ugliness in a mass market.

Engineering has become a principal gateway leading to top management positions. As more and more of the decisions of management in government and business are based on technical considerations, engineers with the necessary background are called upon to make these decisions. The complex, urbanized world of today requires careful consideration of all the many inter-related factors that bear on this type of problem-solving which is made-to-order for the engineer.

At present, the minimum education required for general recognition of competence to practice engineering is a four-year collegiate program leading to a bachelor's degree in one of the fields of engineering. However, many engineering positions require an additional year of education at the graduate level leading to the master's degree. Whenever possible, students are urged to continue their education to this point. For engineering research or teaching and in some areas of practice, the doctor's degree is recommended.

For all engineers, continuing professional competence in the midst of our constantly changing technology requires educational renewal and a life long dedication to continuing education. The College offers seminars, institutes, and off-campus programs designed to meet this need. In addition, all College courses are available on an elective post-degree basis.

DEGREES OFFERED

The College of Engineering offers the Bachelor of Science degree and the Master of Science degree in the fields of

chemical, civil, electrical, industrial, mechanical, and metallurgical engineering. The Doctor of Philosophy degree is also offered through the Graduate Division with majors in chemical, civil, electrical, industrial, and metallurgical engineering, and in mechanical engineering sciences. For graduate degree information, see page 130.

In addition, the Division of Engineering Technology offers the degree of Bachelor of Engineering Technology. For information concerning the Engineering Technology Program, see page 155.

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 College of Engineering leading to a Bachelor of Science degree are accredited by the Engineers' Council for Professional Development. The Council is composed of representatives of eleven national engineering societies and of the American Society for Engineering Education. Curriculum accreditation is based upon careful periodic appraisal of the faculty, educational program, and facilities of the College. This stamp of approval provides assurance of an up-to-date, high quality education pertinent to the engineering profession.

LOCATION OF THE COLLEGE

The College is located in the heart of Detroit, Michigan, the acknowledged world capital of automotive engineering and production. This industrial center provides a wealth of examples of modern engineering practice and opportunities to explore the latest in automation design, steel production, highway planning, hydraulic and pneumatic controls, and electric power generation. The many industries of Southeastern Michigan provide engineering students with rich and varied work experiences on either an occasional basis or regularly in the formal Cooperative Program described on page 129.

The College is affiliated with twelve other schools and colleges of Wayne State University. The University setting, with its some 32,000 students, provides a broad selection of educational opportunities on an interdisciplinary basis.

COLLEGE FACILITIES

In addition to the library and general resources of the University, the College of Engineering itself has 135,000 square feet of classroom, office, and laboratory space. Included in the three-story Engineering Building are general undergraduate laboratories, departmental laboratories, and research laboratories. The general undergraduate laboratories provide facilities in fluid mechanics, thermal sciences, system dynamics, statistical computation and materials science.

These are available for experimentation and research in connection with the undergraduate curricula on a college-wide basis. The laboratories are appropriate for either individual experimentation, or group projects.

The College also has laboratories associated with departmental engineering specializations such as: chemical measurements; chemical processing; metallurgical measurements; metallurgical processing; electron microscopy; soil mechanics; sanitary engineering; roadway and building materials; structural modeling; communications; electronics; microwaves, holography and lasers; automotive; human factors; and stress analysis.

These laboratories are used for instructional and research purposes along with such research facilities as a molecular beam laboratory and a biomechanics accelerator and impact laboratory.

Available to all engineering students are electronic calculators, IBM 360 terminals; a machine shop, a model shop, a photographic darkroom; design rooms; and audio-visual carrels.

There is a growing need in industry and government for bioengineers whose task is to apply engineering technology directly to the human body or other living systems. Problems of automotive safety, cardiovascular assist, man-machine interaction and human tolerance to impact are research areas within the college which are of current interest in the engineering and medical community.

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 132 of this bulletin. Students interested in majoring in this area, particularly at the graduate level, should consult their adviser for further information.

STUDENT ACTIVITIES AND ORGANIZATIONS

The Engineering Student-Faculty Board coordinates and is responsible for all organized student activities in the College. In addition, it sponsors certain college-wide programs such as an Honors Convocation and a College open-house called Engineering Showcase.

The Wayne Engineer, a student engineering magazine, is published four times yearly. It is a member of the Engineering College Magazines Association.

Alpha Sigma Mu is a national metallurgical engineering honorary fraternity founded at Michigan Technological University in January, 1932, to recognize those students in metallurgy or metallurgical engineering who have attained high rank in scholarship and who possess exemplary character. The Wayne State University branch was authorized in the spring of 1960.

Chi Epsilon, a national civil engineering honor fraternity, was founded at the University of Illinois in 1922. The forty-eighth chapter of the fraternity was installed at Wayne State University on May 11, 1956. Election to membership is based on scholarship, character, practicality, and sociability for undergraduate and graduate students, and professional eminence for members of the profession.

Eta Kappa Nu is a national electrical engineering honorary society founded at the University of Illinois in 1904. Election to this society is based on demonstrated outstanding ability, as evidenced by scholarship and individual attainments. The Delta Alpha Chapter was installed at Wayne State University on January 18, 1960.

Pi Tau Sigma is a national mechanical engineering honorary society founded in 1915 at the University of Illinois and at the University of Wisconsin to "foster the high ideals of the engineering profession." Students who have given promise of becoming outstanding leaders in the mechanical engineering field are elected to membership. The Tau Phi Chapter was installed at Wayne State University on May 20, 1960.

The Tau Beta Pi Association is a national honorary engineering society which was founded at Lehigh University in 1885. By election to membership the society recognizes that the member has conferred honor on his Alma Mater by distinguished scholarship and exemplary character as an undergraduate or by attainments in the field of engineering after graduation. The Michigan Epsilon Chapter of Tau Beta Pi was installed at Wayne State University on March 10, 1951.

The Society of the Sigma Xi is a national society devoted to the encouragement of research in science, pure and applied, and to the recognition of achievement in those fields. Undergraduates of high scholastic standing in two or more departments of pure or applied science who have shown promise of ability to conduct original investigations in those fields may be nominated by the faculty for election to associate membership in the Wayne State University Chapter. Graduate students may be nominated to membership on the basis of demonstrated research ability and high scholarship.

Theta Tau, a national professional engineering fraternity, was established at the University of Minnesota in 1904. Epsilon Beta, the twenty-seventh student chapter, was founded on May 19, 1951, at Wayne State University.

Association of Black Engineers and Applied Scientists, founded in 1969, was established to encourage the choice of engineering and science as career fields for black students.

The Society of Women Engineers student chapter is an educational service organization dedicated to making known the need for women engineers and encouraging young women to consider an engineering education. The Wayne State University student chapter was founded in 1973.

Student Branches of Professional Societies add much to the education and preprofessional training of their members. Many outstanding engineers from the community come to the campus each year to address meetings of the branches. Other activities include social meetings and trips to important engineering projects. Student branches of the following professional societies have been active on the campus for several years:

- American Institute of Chemical Engineers
- American Institute of Industrial Engineers
- American Institute of Mining, Metallurgical, and Petroleum Engineers
- American Society of Civil Engineers

American Society of Mechanical Engineers
Institute of Electrical and Electronics Engineers
Society of Automotive Engineers

SCHOLARSHIPS AND AIDS

An increasing number of scholarships are granted each year to undergraduate and graduate students in the College of Engineering. The scholarships differ greatly in their specifications: some stress high scholarship, others place emphasis on financial need or campus citizenship. Engineering students are also eligible for some of the general University scholarships granted each year.

The University is participating in the National Defense Student Loan Program authorized by the National Defense Education Act of 1958. Numerous other loan funds have been established to help students over temporary difficulties. Inquiries concerning these programs should be addressed to the Office of Scholarships and Financial Aids.

Graduate and professional fellowships and scholarships are tax-exempt academic grants awarded on the basis of scholarship and overall promise. Their typical duration is one year; however, many are renewable. They defray tuition and course-related fees. Fellowships also carry a substantial stipend permitting full-time study or research toward the Ph.D. degree. Further information may be obtained from the Office for Graduate Studies. Grants in Aid as well as National Defense Student Loans are available through the Office of Scholarships and Student Financial Aids, see page 30.

Assistantships, fellowships, and scholarships are available in many graduate departments. Information concerning these may be obtained from the chairman of the department in which the student desires to major. From time to time, fellowships and other opportunities are opened to students on other than a continuing basis. Inquiries should be directed to the Associate Dean of the College of Engineering, Room 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 Society for Metals Foundation Scholarship in
Metallurgical Engineering
American Society of Tool and Manufacturing Engineers Scholarship
in Engineering
Burroughs Corporation Scholarship
Chrysler Corporation Fund Co-op Scholarship
Chrysler Corporation Fund Scholarship
Detroit Edison Co-op Scholarship
Dow Chemical Corporation Co-op Scholarship
Ex-Cell-O Corporation Co-op Scholarship
International Nickel Company Fellowship in Metallurgical Engineering
Michigan Bell Co-op Scholarship
Michigan Consolidated Gas Company Co-op Scholarship
Murray and Helen Altman Scholarship

National Science Foundations Fellowships
Ohio Edison Co-op Scholarship
Proctor & Gamble Co-op Scholarship
The Arthur Raymond Carr Memorial Scholarships in Engineering
The L. David Cook Award in Chemical and Metallurgical Engineering
The Detroit Edison Scholarships in Engineering
The Frederick G. Weed Graduate Scholarship in Chemical Engineering
The General Motors Scholarship Program
The Graduate Professional Scholarship
The James E. and Christina L. Orr Scholarships in Engineering
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 31.



ACADEMIC INFORMATION

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the 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. The recommended high school preparation for admission to the College of Engineering is:

	<i>number of units</i>
English	4
Algebra	2
Plane and Solid Geometry	1½
Trigonometry	½
Physics	1
Chemistry	1
Social Science or Foreign Language	2
Electives	3

The freshman with this background enters the regular scheduled program if he makes satisfactory scores on the Mathematics Qualifying Examination.

Students having only two of the above units in mathematics and one unit of physics, chemistry, or biology may 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

Mathematics

The sequence of mathematics courses for the engineering student normally begins with Mathematics 0180. However, a student may bypass Mathematics 0180 and start in Mathematics 0211 if he can qualify. For admission to either Mathematics 0180 or Mathematics 0211, a qualifying examination must be passed. The Mathematics 0180 Qualifying Examination is based upon one and one-half units of high school algebra and one unit of high school geometry. The Mathematics 0211 Qualifying Examination is based upon a total of three and one-half to four units of college preparatory mathematics covering algebra, plane and solid geometry, and trigonometry.

Chemistry

The sequence of chemistry courses for the engineering student normally begins with Chemistry 0102. However, a student may bypass Chemistry 0102 and start in Chemistry 0107 if he can qualify. Qualification for Chemistry 0107 requires a satisfactory score on the Chemistry Qualification Examination. There is no qualifying examination required for admission to Chemistry 0102.

Degree Credits

If an engineering student qualifies to bypass Mathematics 0180 or Chemistry 0102, the credits required for his engineering degree are reduced accordingly. The maximum reduction of nine credits will bring the degree requirements down to 187 credits.

TRANSFER STUDENTS

For the student who has attended another institution and who has been found admissible to the College of Engineering, the amount of advanced standing will be determined by the College and will depend upon the quantity and quality of the degree work completed prior to enrollment in this institution.

Whether all, or only part, of such transferred credit may be applied toward a degree at Wayne State will depend on the requirements of the curriculum chosen. The student should consult his department chairman on this matter.

Any request for reconsideration of the evaluation of transfer credits accepted by the College of Engineering should be made in writing within one year of the date of the student's first enrollment in the College of Engineering, or within one year of the date of the evaluation if the latter is made subsequent to the student's enrollment in the College of Engineering.

For information regarding transfer admission requirements see page 7.

Transfer of College within the University

A student in another college of Wayne State University who wishes to transfer to engineering makes application directly to the College of Engineering. The transfer form is available in the Dean's office. This application for transfer should be made as soon as the student decides to work toward an engineering degree since delay may cause him serious prerequisite problems and loss of credit.

The student will ordinarily be admitted if his average is at least C in the courses pertinent to his engineering program.

Guests

A student attending another engineering college who wishes to take course work at Wayne State for the purpose of credit

transfer to his home institution may be admitted as a guest student for one term. This is done by applying through the University Office of Admissions using either the *Application for Undergraduate Admission* or the *Graduate Guest Application*. These applications require certification by an official of the home institution. For further information on graduate guest admission and visiting doctoral guests, see p. 17 in the section "Graduate Admission."

The Michigan Conference of Engineering Deans has entered into an agreement endorsing the exchange of guest privileges between ECPD-accredited engineering curricula in Michigan.

ATTENDANCE

Regularity in attendance is necessary to success in college work. Excessive unexcused absences may result in withdrawing a student from a class. The student should arrange with his instructor in advance for absences incident to attending meetings of professional organizations or of learned societies. Other absences due to illness or conditions beyond his control should be reported upon the student's return to class.

DEAN'S LIST OF HONOR STUDENTS

A student who achieves a term honor point average of 3.5 or more, based on a program of 12 hours or more, is notified by the Dean of his citation for distinguished scholarship and his name is included on the Dean's List of Honor Students.

PROBATION

A student is considered to be on probation whenever his cumulative honor point average falls below 2.0. A student may also be placed on probation whenever his academic performance is deemed unsatisfactory.

While on probation a student may not represent the College of Engineering in student activities.

The Academic Standards Committee of the College administers the regulations for such students.

A student on probation is expected to remove his honor point deficiency promptly. (Honor point deficiency is obtained by subtracting the total number of honor points from twice the total number of credit hours in the honor point base. It is the number of honor points by which the student fails to achieve a 2.0 honor point average.)

If at the end of his second quarter on probation the student's honor point deficiency has not increased, he may be continued on probation for one more quarter. For part-time students, a quarter will be considered to consist of twelve consecutive credit hours.

If a student improves his standing in accordance with the above regulations, he will be returned to regular status (cumulative honor point average at least 2.0).

A student may be refused the privilege of registering in the College if at any time his honor point deficiency exceeds six-

teen points, or if he has not returned to regular status at the end of his third quarter on probation. A student may also be refused the privilege of registering in the College for irresponsible attendance and performance in class, regardless of any probationary status.

The privilege of registering in the College 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 College.

A student who has been refused the privilege of registering in the College may request a re-consideration of his status. He should not do this, however, unless he can provide evidence of extenuating circumstances which might be unknown to the Academic Standards Committee.

SUBSTANDARD PERFORMANCE

The grade D is considered by the College of Engineering to represent sub-standard performance. The implications of this are particularly significant in the science, mathematics, and engineering sequences.

If a grade D is received in any course which is prerequisite to another course in his program, or in a course in his department of specialization, or in a required course in mathematics, physics, or chemistry, the student may be required by the chairman of his major department to repeat that course.

A student not required to repeat a course in which a D grade has been received may elect to audit such a course to better his knowledge. However, he then may not later enroll in the course for credit or obtain credit for the course by Special Examination.

A course in which a grade below C has been earned may not be subsequently passed by Special Examination.

When repeating a course, failure for the third time to pass it with a grade satisfactory to the major department constitutes grounds for refusing a student further registration in the College of Engineering.

An engineering student who repeats a required course in which he received a grade of D or E must repeat that course at Wayne State University unless he secures prior written approval from his department chairman and the Dean to take the course at a designated institution.

GRADUATION

At graduation the University requires a minimum of 2.0 honor point average in the total residence credit. Additionally, the College requires a minimum 2.0 honor point average in the total work taken in the department of specialization.

Graduates may qualify for a special diploma reading "with distinction" or "with high distinction" under the following conditions:

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

With high distinction — An honor point average of 3.6, if the candidate has earned at least 150 credits in residence; 3.7, if between 90 and 150 credits.

Each year, Commencement Exercises are held in December for summer quarter and fall quarter graduates and in June for winter quarter and spring quarter graduates.

PROFESSIONAL REGISTRATION

An additional mark of engineering competence is the successful completion of examinations for professional registration. These examinations are given by each state. Upon being registered in a state, the engineer may legally provide engineering services to the public of that state. Most of the states have reciprocity agreements for transfer of registration. In Michigan, the State Board of Registration for Professional Engineers offers the registration examination in April and December of each year. Graduates at the bachelor's degree level are qualified and urged to take Part I (Engineering Theory) of the examination immediately upon graduation. Application forms are available in the Dean's office.



UNDERGRADUATE ENGINEERING DEGREE PROGRAMS

The Bachelor of Science degree is awarded in each of the following fields:

Chemical Engineering	Industrial Engineering
Civil Engineering	Mechanical Engineering
Electrical Engineering	Metallurgical Engineering

The normal amount of credit required for each of these degrees is 196 credits based on the curricular plans shown in this section. A student who qualifies to bypass Mathematics 0180 or Chemistry 0102 will have the degree requirements reduced to as low as 187 credits. See Undergraduate Admission, Qualifying Examinations, above. On the other hand, a student may need to strengthen his background, as in English composition or algebra, or may elect courses not applicable to the degree requirements. These courses would be recorded on his transcript but would not count toward the engineering degree.

The University defines normal progress toward graduation as forty-five credits in twelve months. Hence, the engineering student making normal progress toward his degree, will require four and one-third years to achieve 196 credits. A student who elects the Cooperative Professional Development Program (see Program Planning, page 129) will require five years for his degree.

Of the total credits for the degree, at least the last forty-five credits must be completed while in this College.

An engineering student who after receiving one Bachelor of Science degree at Wayne State University wishes to obtain a second bachelor's degree must complete at least forty-five credits beyond those applied toward the first degree and must also satisfy all departmental and College course requirements.

THE LOWER DIVISION

The Lower Division consists of a freshman and sophomore curriculum common to all degree programs. This curriculum works in conjunction with community and junior college programs and prepares the student for the Upper Division professional engineering courses pertinent to his degree.

A freshman who is certain of the degree he wishes to obtain will be assigned to the department granting that degree. If he is uncertain, he may elect an "undecided" assignment and will receive special career guidance and counseling during the freshman year. When he has decided upon his degree area, he will then be assigned to the appropriate department. Students are strongly encouraged to reach a decision prior to the completion of the freshman year.

In the Lower Division courses the student acquires a lasting foundation in the basic sciences, mathematics, and the engineering sciences. The Basic Engineering courses provide an introduction to essential engineering concepts which are developed further in Upper Division courses. Throughout both Lower and Upper Division curricula a continuing general education in the social science and humanities areas is included.

Along with other schools and colleges in the University, the College of Engineering requires each student to pass an English Proficiency in Composition Examination. This examination is usually taken in the sophomore year (see page 129).

Curriculum — Lower Division

Freshman Year

<i>First Quarter</i>		<i>credits</i>
Basic Engg. 0100	Introduction to Engineering Design	3
Chemistry 0102	General Chemistry I	4
Mathematics 0180	Elementary Functions	5
¹ Socio-Humanistic Elective		4
		16

<i>Second Quarter</i>		
Basic Engg. 0102	Engineering Systems Analysis I	4
Chemistry 0107	Principles of Chemistry I	4
Mathematics 0211	Calculus of Functions of One Variable I	4
¹ Socio-Humanistic Elective		4
		16

<i>Third Quarter</i>		
Chemistry 0108	Principles of Chemistry II	4
Mathematics 0212	Calculus of Functions of Several Variables I	4
Mathematics 0215	Calculus of Functions of One Variable II	4
¹ Socio-Humanistic Elective		4
		16

Sophomore Year

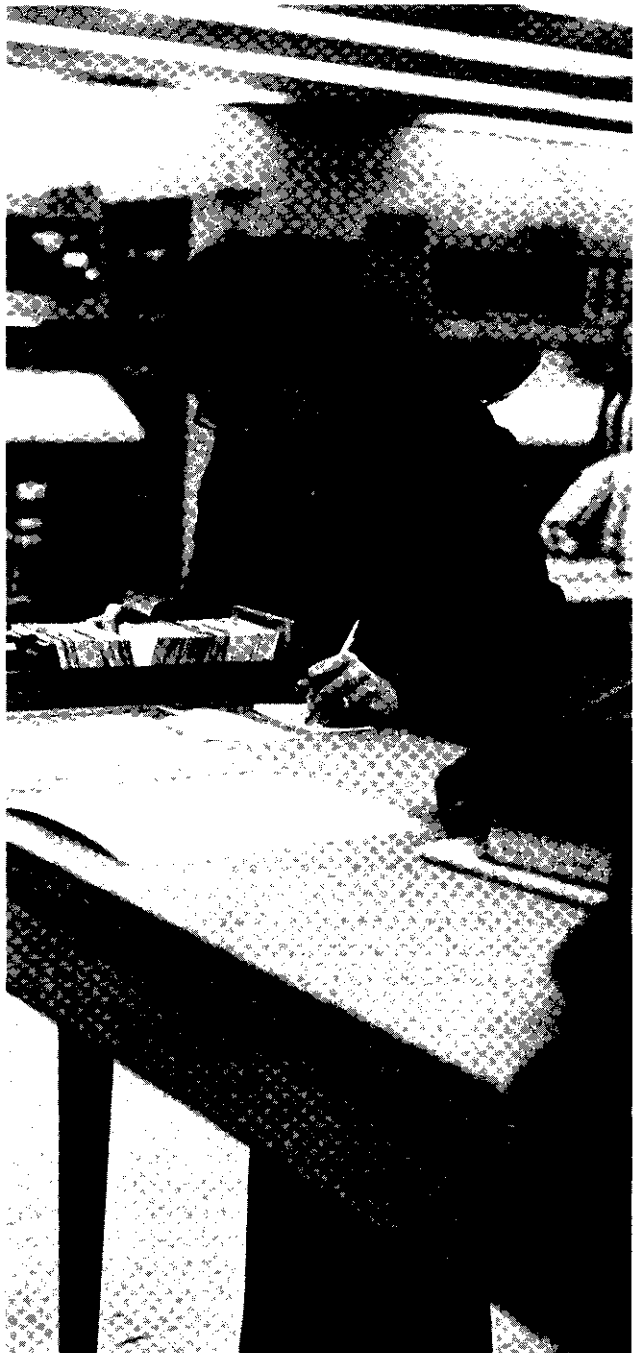
<i>First Quarter</i>		
Mech. Engg. Sci. 0210	Statics and Dynamics	4
Computer Science 0280	Introduction to Numerical Algorithms	2
Mathematics 0214	Calculus of Functions of Several Variables II	4
Physics 0217	General Physics	4
Metallurgical Engg. 0130	Science of Engineering Materials	4
		18

<i>Second Quarter</i>		
Basic Engg. 0204	Engineering Systems Analysis II	3
Mech. Engg. Sci. 0230	Mechanics of Fluids and Solids	4
Mathematics 0213	Elementary Linear Algebra	4
Physics 0218	General Physics	4
		15

¹ Entering freshmen elect the Monteith General Education Program, see page 436.

Third Quarter

Basic Engg. 0220	Thermodynamics	4
Mathematics 0519	Differential Equations	4
² Physics 0219	General Physics	4
Socio-Humanistic Elective		4
		16



² Chemical Engineering and Metallurgical Engineering students take Chemical Engineering 0280 here and defer Physics 0219 to the junior year. Electrical Engineering students take Basic Engineering 0240 here and defer Physics 0219 to the junior year.

UPPER DIVISION ENGINEERING CURRICULA

CHEMICAL ENGINEERING

Office: 128 Engineering Building

Chairman: R. H. Kummler

Assistant Chairman: R. W. Mickelson

Professors

C. L. Corey, Ph.D., H. G. Donnelly, Ph.D., R. Marriott, Ph.D., E. W. Rothe, Ph.D., S. K. Stynes, Ph.D.

Associate Professors

E. K. Fisher, Ph.D., R. H. Kummler, Ph.D., J. H. McMicking, Ph.D., R. W. Mickelson, Ph.D.

Assistant Professor

J. Jorne, Ph.D.

Adjunct Assistant Professor

D. W. Regulia, Ph.D.

The field of the chemical engineer embraces those industries in which matter is treated to effect a change of state, energy content, or composition; and in these industries he may be concerned with either the processes or the process equipment used for them.

More specifically, the chemical engineer may enter the fields of fuels and petroleum processing; heavy, fine, and pharmaceutical chemicals; textiles and fibers, food processing and products; natural and synthetic rubbers and plastics; explosives; pulp and paper; cements and building materials; surface coatings; disposal of chemical plant wastes; atomic energy processes; and environmental control.

The curriculum in chemical engineering covers material and energy balances, principles of unit operations and unit processes encountered in many industries, and principles of chemical process and equipment design.

The breadth of this program permits a graduate to enter the chemical industries with confidence that his abilities will find almost immediate use. He may enter the division of production and advance toward plant or production management positions; or he may find his training will be utilized successfully in design, development, or research departments. In the latter cases additional formal education at the graduate level may be desirable. Chemical engineers with master's or doctor's degrees constitute a large percentage of those employed in research and development work.

The chemical engineer with his broad knowledge of chemistry feels confident of his ability to take the products of research

from the chemist and translate them with the benefit of his education into commercially valuable production processes. Through his development work on the pilot plant scale, he may produce the ultimate design of a full-scale plant.

Chemical Engineering Curriculum

Upper Division

Junior Year

<i>First Quarter</i>		<i>credits</i>
Chemical Engg. 0320	Transport Phenomena II	3
Chemical Engg. 0358	Chemical Equilibria	3
Chemistry 0224	Organic Chemistry I	4
Chemistry 0540	Introduction to Thermodynamics	3
Physics 0219	General Physics	4
		<hr/> 17

Second Quarter

Basic Engg. 0240	Introduction to System Dynamics	4
Chemical Engg. 0350	Chemical Process Engineering I	3
Chemical Engg. 0352	Measurements Laboratory	3
Chemistry 0226	Organic Chemistry II	4
Chemistry 0542	Chemical Dynamics	3
		<hr/> 17

Third Quarter

Chemical Engg. 0380	Mass Transfer	4
Chemical Engg. 0382	Chemical Engineering Laboratory	3
Chemical Engg. 0388	Kinetics and Catalysis	3
Electrical Engg. 0300	Introduction to Electrical Engineering	4
Chemistry 0544	Quantum Chemistry and Spectroscopy	3
		<hr/> 17

Senior Year

First Quarter

Chemical Engg. 0420	Chemical Process Engineering II	4
Chemical Engg. 0426	Chemical Engineering Research: Organization	2
Electrical Engg. 0302	Electrical Circuits Laboratory I	2
Socio-Humanistic Elective		4
Technical Elective		4
		<hr/> 16

Second Quarter

Chemical Engg. 0450	Chemical Process Integration	3
Chemical Engg. 0456	Chemical Engineering Research: Investigation	4
Chemical Engg. 0460	Process Dynamics and Simulation	3
Electives		6
		<hr/> 16

Third Quarter

Chemical Engg. 0486	Chemical Engineering Research: Report	2
Socio-Humanistic Electives		4
Technical Elective		4
Electives		6
		<hr/> 16

CIVIL ENGINEERING

Office: 667 Merrick

Chairman: J. H. Lamb, Jr.

Professors

H. A. Dirasian, Ph.D., D. S. Ling, C.E. (Emeritus), D. Newton, M.S. (Emeritus), C. J. Ordon, M.S.San.E., *J. C. Partyka, L.L.B., M.S.E., J. M. Paulson, Ph.D.

Associate Professors

V. Kouskoulas, Ph.D., J. H. Lamb, Jr., Ph.D., C. W. Lewitt, Ph.D.

Assistant Professors

T. K. Datta, Ph.D., C. P. Huang, Ph.D., M. Tanaka, Ph.D.

Adjunct Professor

A. C. Zweig, M.S.

The urban crisis in America has brought into sharp focus the profession of Civil Engineering and the responsibilities of its practitioners. The civil engineer is a leader in such diverse areas of concern as water resources planning; the collection, treatment and distribution of pure, potable water; the treatment and ultimate disposal of noxious solid and liquid wastes; design of building systems which will provide adequate housing for urban dwellers, commerce and industry; development of adequate transportation systems and facilities for our burgeoning urban society; construction methods and management. Obviously, the responsibilities of the civil engineer directly involve the health, safety and welfare of the public. The educational experience of the civil engineer must provide a thorough grounding in the relevant fundamentals, the application of these fundamentals to practice and the decision making processes required to design and construct large complex systems.

The civil engineering curriculum has been designed to provide a broad education in the basic sciences, mathematics, and engineering sciences and their application to civil engineering practice in the areas of housing and structures, soil mechanics, transportation and environmental water resources. The courses in civil engineering may be considered as an array of groups, each group representing an area of concern to contemporary society and industry. Technical electives may be selected from one of these major areas according to the student's particular interest or he may prefer to choose them in several areas in order to broaden his knowledge. A student who contemplates continuing his studies at the graduate level should seek the advice of his faculty counselor in the selection of elective courses. Realizing the social implications of the practice of civil engineering, the program provides for the development of a background in economics, the social sciences, humanities and related non-technical areas.

* Leave of absence.

Civil Engineering Curriculum

Upper Division

Junior Year

<i>First Quarter</i>	<i>credits</i>
Basic Engg. 0240 Introduction to System Dynamics	4
Civil Engg. 0401 Civil Engineering Analysis	4
Civil Engg. 0445 Civil Engineering Materials I	3
Advanced Statistics	4
Elective	4
	<hr/> 19

Second Quarter

Civil Engg. 0430 Structures I	4
Electrical Engg. 0300 Introduction to Electrical Engineering	4
Electives	8
	<hr/> 16

Third Quarter

Civil Engg. 0421 Water Resources	4
Civil Engg. 0433 Structures II	4
Civil Engg. 0446 Civil Engineering Materials II	3
Civil Engg. 0560 Transportation Engineering I	4
Electrical Engg. 0302 Electrical Circuits Laboratory I	2
	<hr/> 17

Senior Year

First Quarter

Civil Engg. 0434 Structures III	4
Civil Engg. 0452 Engineering Properties of Soils	4
Civil Engg. 0521 Environmental Engineering	4
Civil Engg. 0567 Transportation Engineering II	4
	<hr/> 16

Second Quarter

*Civil Engg. Design Requirement	4
Socio-Humanistic Elective	4
Technical Electives	9
	<hr/> 17

Third Quarter

Socio-Humanistic Elective	4
Technical Electives	10
	<hr/> 14

* One of the following C E courses: 0528, 0564, 0551 and 0441.

ELECTRICAL ENGINEERING

Office: 306 Engineering Building

Acting Chairman: Roy O. Sather

Professors

R. D. Barnard, Ph.D., F. E. Brammer, Ph.D., *A. J. Glass, Ph.D., H. M. Hess, M.S., J. Meisel, Ph.D., R. O. Sather, Ph.D., M. B. Scherba, Ph.D., M. P. Shaw, Ph.D.

Associate Professors

E. L. Fairchild, M.S., D. V. Stocker, M.S.E., E. Y. Wang, Ph.D., F. T. S. Yu, Ph.D.

Assistant Professors

I. J. Gastman, Ph.D., A. J. Lightman, Ph.D., R. P. Roesser, Ph.D.

Instructors

W. Czubytyj, M.S.E.E.

The discipline of electrical engineering has broadened in recent years far beyond the classical areas of circuits, fields, and communications, although these subjects are still of great practical interest. Many new and exciting areas of study now fall under the aegis of electrical engineering, including solid-state devices, microwaves, quantum electronics, information sciences, computers, bio-electronics, and modern control theory. Programs of both experimental and theoretical study are available in all these areas in the Electrical Engineering Department.

Three undergraduate options are now available in the electrical engineering curriculum: (1) Computers and Information Theory, (2) Electronics and Electromagnetics, and (3) Systems. A common departmental core curriculum of 40 credits is indicated below. A minimum of 28 credits of technical electives must be taken in addition to the core courses. These electives, normally taken during the last year of undergraduate study, are chosen by the student with the guidance of his faculty adviser. As soon as a student enters the first departmental course in electrical engineering, he is assigned to an individual faculty adviser. It is the responsibility of the adviser to help the student to identify his career objectives, and plan his curriculum accordingly.

Research is carried out in the department in control theory, power distribution systems, laser physics, holography, information sciences and semiconductor electronics. A more detailed picture of the research activities in the department is provided by 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 research assistants.

* Leave of absence.

Electrical Engineering Curriculum

Upper Division

Junior Year

<i>First Quarter</i>		<i>credits</i>
Electrical Engg. 0301	Network Analysis I	4
Mathematics 0520	Vector Analysis	3
Physics 0219	General Physics	4
Socio-Humanistic Elective		4
		<hr/> 15

Second Quarter

Electrical Engg. 0302	Electrical Circuits Laboratory I	2
Electrical Engg. 0351	Electronic Circuits I	4
Electrical Engg. 0431	Network Analysis II	4
Physics 0220	General Physics	4
Elective		4
		<hr/> 18

Third Quarter

Electrical Engg. 0381	Electromagnetic Theory I	4
Electrical Engg. 0441	Applied System Theory	4
Electrical Engg. 0466	Computer Aided Design	4
Socio-Humanistic Elective		4
		<hr/> 16

Senior Year

First Quarter

Electrical Engg. 0352	Electronics Laboratory I	2
Electrical Engg. 0447	Control Systems I	4
Electrical Engg. 0477	Introduction to Communication Theory	4
Electrical Engg. Elective		4
Technical Elective		4
		<hr/> 18

Second Quarter

Electrical Engg. 0481	Electromagnetic Theory II	4
Electrical Engg. Elective		4
Elective		4
Technical Elective		4
		<hr/> 16

Third Quarter

Electrical Engg. Electives		8
Elective		4
Technical Elective		4
		<hr/> 16

INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH

Office: 632 Putnam

Acting Chairman: L. R. Lamberson

Professors

A. W. Jones, Ph.D., R. S. Jones, M.S., P.E., H. Allan Knappenberger, Ph.D.

Associate Professors

K. C. Kapur, Ph.D., L. R. Lamberson, Ph.D., P.E., H. G. Ludwig, M.S.I.E., P.E., V. K. Sahney, Ph.D.

Assistant Professor

G. D. Langolf, Ph.D., R. R. Mourant, Ph.D.

Instructors

K. Mirhkani, M.S.I.E., S. Taraman, M.S.I.E.

The challenge of industrial engineering is the design of systems to produce products and provide services which are useful to mankind. Although the word industrial suggests that this engineer works only in manufacturing industries, the talents of industrial engineers are equally valuable to hospitals, government agencies, commercial and financial institutions, or any other organization that produces a product or provides a service.

In manufacturing organizations the industrial engineer is involved in the design of a wide variety of systems. These systems may be as small as a work station consisting of one man and a machine, they may be slightly larger systems involving several men and machines, they may involve an entire plant including the systems to control the production, inventory and quality of large numbers of complex products.

The skills which the industrial engineer uses to design manufacturing systems are also useful in the design of better systems to care for hospital patients, provide faster and more accurate mail distribution, provide fast and accurate airline reservations, control large space projects, and reduce air and water pollution. Industrial engineers are being called upon in increasing numbers to design systems which provide services beneficial to society at a cost which man can afford.

There are many similarities in the academic preparation of various types of engineers. All engineers are required to take courses in mathematics, physics, chemistry, mechanics, materials, and electricity. There are also important differences in the academic preparation for each of the engineering disciplines. Since many of the systems of concern to the industrial engineer involve a human component, an understanding of the physiological and psychological capabilities of man is important. Thus, the industrial engineering curriculum includes courses in human performance. The presence of a human

component in most industrial engineering systems, and the size of systems as large as an entire industrial organization, greatly complicates the problem of analysis and design of such systems. To cope with this increased complexity, a special set of mathematical tools and a methodology has emerged in recent years. This new body of knowledge has been labeled operations research. Its importance to the discipline of industrial engineering is reflected by the inclusion of the words operations research in the name of the department.

It is the goal of the undergraduate program to prepare young men and women to accept the challenge which exists for industrial engineers in a wide variety of manufacturing and service organizations.

In addition to the undergraduate program, the Department offers a wide variety of professional and research graduate programs culminating in a Master of Science or a Doctor of Philosophy degree.

Industrial Engineering Curriculum

Upper Division

Junior Year

<i>First Quarter</i>	<i>credits</i>
Basic Engg. 0240 Introduction to System Dynamics	4
Industrial Engg. 0450 Industrial Organization	4
Industrial Engg. 0554 Foundations of Reliability and Quality Assurance	4
Industrial Engg. 0587 Engineering Economy	4
	<hr/> 16

Second Quarter

Electrical Engg. 0300 Introduction to Electrical Engineering	4
Industrial Engg. 0431 Operations Engineering I	4
Industrial Engg. 0562 Experimental Design	4
Industrial Engg. 0556 Operations Research I	4
	<hr/> 16

Third Quarter

Electrical Engg. 0302 Electrical Circuits Laboratory I	2
Industrial Engg. 0432 Operations Engineering II	4
Industrial Engg. 0511 Introduction to Human Factors Engineering	4
Industrial Engg. 0557 Operations Research II	4
Socio-Humanistic Elective	4
	<hr/> 18

Senior Year

<i>First Quarter</i>	
Industrial Engg. 0533 Operations Engineering III	4
Industrial Engg. 0558 Operations Research III	4
Technical Elective	3
Socio-Humanistic Elective	4
	<hr/> 15

Second Quarter

Industrial Engg. 0521 Systems Engineering	4
Industrial Engg. 0613 Simulation Methods	4
Accounting 0601 Financial Accounting	4
Elective	4
	16

Third Quarter

Industrial Engineering Electives	7
Technical Elective	3
Electives	8
	18

MECHANICAL ENGINEERING SCIENCES

Office: 667 Merrick

Chairman: S. J. Allen

Assistant Chairman: J. P. Lee

Professors

S. J. Allen, Ph.D., *S. R. Davis, Ph.D., C. N. DeSilva, Ph.D., G. H. Howell, M.E., R. M. Jamison, M.E. (Emeritus), K. A. Kline, Ph.D., J. P. Lee, Ph.D., L. M. Patrick, M.S., D. L. Perkins, M.S. (Emeritus), R. A. Piccirelli, Ph.D., G. E. Rivers, M.A. (Emeritus), †J. A. L. Thomson, Ph.D.

Associate Professors

S. Carmi, Ph.D., H. P. Hale, M.S.M.E., N. A. Henein, Ph.D., A. I. King, Ph.D., M. G. Koenig, M.S.M.E., D. P. Lalas, Ph.D., G. P. Loweke, Ph.D. (Emeritus), H. K. Sachs, Dr.-Ing., A. B. Whitman, Ph.D., E. C. Zobel, M.S.E.

Assistant Professors

J. J. Blass, Ph.D., V. H. Kenner, Ph.D., D. Orne, Ph.D., T. Singh, Ph.D.

The field of mechanical engineering encompasses a broad variety of career possibilities dealing with the design analysis and synthesis, the research and test development, and the manufacturing of a multitude of products. Rocketry and turbines, family limousines and earth-movers, automatic transfer machines and orthopedic mechanisms are all in the vast realm of the mechanical engineer. His challenge is in the perfection of a device that will be duplicated a millionfold, or in the control optimization of a single complex system of unique dimension.

The curriculum in mechanical engineering sciences emphasizes both scientific principles and the application of these principles through modern engineering methodology — for example, exact analytic techniques, approximate and numerical methods, computer modeling, and systems analysis and synthesis. The emphasis, therefore, is not on detailed presentation

of technology but on a firm grounding in the basic concepts of modern science. Students are prepared to attack the complex problems in modern engineering which cannot be solved by traditional methods. Building upon the foundation of the first two years is a core of mechanical engineering sciences courses which further strengthens the background and training of the students, develops problem solving skills and allows great flexibility in choosing, with the help of advisers, technical electives in the senior year. These technical electives may be chosen in one of the many optional areas of specialization which initiate the student into the intricacies of modern engineering problems. The educational capstone is an experience in systems design which integrates and focuses the total background of the student on a specific design challenge.

Mechanical Engineering Sciences Curriculum

Upper Division

Junior Year

<i>First Quarter</i>	<i>credits</i>
Mech. Engg. Sci. 0310 . . . Solid Mechanics I	4
Mech. Engg. Sci. 0320 . . . Thermodynamics II	4
Mech. Engg. Sci. 0330 . . . Fluid Mechanics I	4
Socio-Humanistic Elective	4
	16

Second Quarter

Basic Engg. 0240 Introduction to System Dynamics	4
Mech. Engg. Sci. 0340 . . . Dynamics I	4
Mech. Engg. Sci. 0420 . . . Heat Transfer	4
Socio-Humanistic Elective	4
	16

Third Quarter

Electrical Engg. 0300 . . . Introduction to Electrical Engineering . . .	4
Mech. Engg. Sci. 0341 . . . Vibrations I	4
Mech. Engg. Sci. 0392 . . . Fundamentals of Engineering Experimentation	3
¹ Technical Electives	6
	17

Senior Year

<i>First Quarter</i>	<i>credits</i>
Electrical Engg. 0302 . . . Electrical Circuits Laboratory I	2
Mech. Engg. Sci. 0350 . . . Design of Mechanical Elements	4
Mech. Engg. Sci. 0393 . . . Experimental Problems in Mechanical Engineering Sciences OR	4
² Mech. Engg. Sci. 0492 . . . Engineering Experimental Project	4
Elective	4
¹ Technical Electives	4
	18

* Leave of absence.

¹ For footnotes see next page.

Second Quarter

Mech. Engg. Sci. 0352 ... Systems Design and Synthesis I	4
Mech. Engg. Sci. 0410 ... Solid Mechanics II	4
Elective	4
¹ Technical Electives	4
	16

Third Quarter

Mech. Engg. Sci. 0430 ... Fluid Mechanics II	4
Mech. Engg. Sci. 0450 ... Systems Design and Synthesis II	4
Elective	4
¹ Technical Electives	4
	16

METALLURGICAL ENGINEERING

Office: 128 Engineering Building

Chairman: J. L. Jackson

Assistant Chairman: R. W. Mickelson

Professors

C. L. Corey, Ph.D., L. Himmel, Ph.D., J. L. Jackson, Ph.D.,
P. K. Rol, Ph.D.

Associate Professor

C. A. Nagler, Ph.D.

Assistant Professor

W. L. Haworth, Ph.D.

Adjunct Professor

J. J. Harwood, M.S.

Almost every problem in the complex technology of our industrial society is, at its core, a materials problem. Power generation by nuclear reactors, lighter and more crash-resistant automobiles, electronic device miniaturization, earth-orbiting satellites all depend on the development of new engineering materials or the improvement of well-tried ones. As a result, the ancient profession of metallurgy has been revolutionized in recent years. The metallurgical engineer must master the science that enables him to understand the behavior of metals and materials, their mechanical, optical, thermal, electrical and chemical properties and the internal structure that determines these properties. He can then apply his knowledge to the extraction of metals from their ores, processing of materials into useful products, or controlling and improving the properties themselves.

¹ A total of eighteen technical electives is required of which at least twelve must be in mechanical engineering sciences. Students will be expected to demonstrate competency in engineering drafting techniques. Those students with no drafting experience will wish to elect one or more courses in this area as a part of their technical elective program.

² At least two consecutive quarters are required to complete this course. Register only once, normally in the fall quarter.

The metallurgical engineering curriculum combines the study of this relationship between the structure and properties of materials with the engineering aspect of metal production, fabrication and use. Elective courses offered during the senior year enable the student to follow his particular interests in detail, and a senior research and seminar sequence provides the opportunity for independent work with appropriate faculty guidance. Finally, the metallurgical engineer graduating and working in the Detroit area joins the highest concentration of his fellow professionals in the country.

Metallurgical Engineering Curriculum

Upper Division

Junior Year

<i>First Quarter</i>	<i>credits</i>
Chemical Engg. 0358 ... Chemical Equilibria	3
Metallurgical Engg. 0260 ... Physical Metallurgy I	4
Metallurgical Engg. 0262 ... Structure and Properties of Metals Laboratory	2
Physics 0219 ... General Physics	4
Chemistry 0540 ... Introduction to Thermodynamics	3
	16

Second Quarter

Basic Engg. 0240 ... Introduction to System Dynamics	4
Metallurgical Engg. 0300 ... X-Ray Metallurgy	4
Metallurgical Engg. 0330 ... Physical Metallurgy II	4
Chemistry 0542 ... Chemical Dynamics	3
	15

Third Quarter

Electrical Engg. 0300 ... Introduction to Electrical Engineering	4
Metallurgical Engg. 0360 ... Physical Metallurgy III	4
Mathematics 0520 ... Vector Analysis	3
Physics 0220 ... General Physics	4
	15

Senior Year

<i>First Quarter</i>	<i>credits</i>
Electrical Engg. 0302 ... Electrical Circuits Laboratory I	2
Metallurgical Engg. 0380 ... Process Metallurgy	4
Metallurgical Engg. 0382 ... Metallurgical Operations Laboratory	2
Metallurgical Engg. 0426 ... Research: Organization	1
Metallurgical Engg. 0430 ... Materials Aspect of Fabrication I	4
Socio-Humanistic Elective	4
	17

Second Quarter

Metallurgical Engg. 0420 ... Fundamentals of Design	3
Metallurgical Engg. 0456 ... Research: Investigation	4
Socio-Humanistic Elective	4
Technical Elective	3
Elective	4
	18

Third Quarter

Metallurgical Engg. 0486 . Senior Seminar	2
Electives	8
Technical Electives	8

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ENGINEERING PROGRAM PLANNING

In planning a program of studies, the sequences of courses shown in the preceding curricula may be modified provided course prerequisites are satisfied. Students may attend the University on either a full-time or a part-time basis. Twelve credits are considered by the University as a minimum full-time load. The maximum load is determined by the student's ability and available time. However, since a credit hour (credit) is defined as one class hour requiring about two hours of preparation per week carried through a quarter, the fifteen to eighteen credit programs shown in the curricular plans represent a full forty-hour academic work week. A three hour laboratory period is generally regarded as the equivalent of one credit.

Some courses may be offered only once a year; others may have multiple sections running every quarter. The University *Schedule of Classes*, published for each quarter, shows when and where the classes will meet and outlines registration procedures and times.

SOCIO-HUMANISTIC ELECTIVES

Engineering today extends far beyond technical decisions. Far-reaching effects of man-made technology require the engineer to be aware of and sensitive to his social responsibilities. Studies involving the engineer in sociological, economic and aesthetic judgments are incorporated in the engineering program in order to insure an understanding beyond the technical which will enable the complete engineer to make value judgments.

The College has therefore included a program in the social sciences and the humanities as a part of all engineering curricula. A minimum of six courses totaling at least twenty-four credits in socio-humanistic electives is required. Included in this general requirement are the following specific requirements:

University Requirement in American Government — See page 11.

Economics Requirement — At least one course in economics is required. Economics 0101 is recommended.

MONTEITH COLLEGE

Beginning with the fall quarter 1974 all entering freshmen students in the College of Engineering will be required to complete a year-long sequence of courses for twelve credits in a general education program designed specifically for engineering students. The program is offered in Monteith College. For detailed information regarding this program see page 436.

Entering freshmen completing the Monteith Program will be required to complete at least twelve additional credit hours 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.

Transfer students into the College of Engineering may elect to take all three courses in the Monteith Program specified above, but only if they do so *in toto*.

Communication Skills

All students entering the College of Engineering beginning with the fall quarter 1974 will be required to complete at least six credits in the communication skills of speech and technical writing. Students are directed to consult with their departmental advisers regarding specific recommendations for these elections.

ENGLISH PROFICIENCY

All students who are required to pass English 0095, English for Foreign Students, must also complete English 0130 without delay.

All freshmen whose scores on the freshman English Diagnostic Test direct them to take English 0130 must do so without delay.

The English Proficiency Examination in Composition required of each engineering student is usually taken during the sophomore year. A student wishing to prepare himself for this examination should plan on taking English 0130 and/or English 0150 in his freshman year. The examination is given during the registration period at the beginning of each quarter. Prescribed times are shown in the *Schedule of Classes* under the English Language and Literature Department of the College of Liberal Arts.

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 major adviser.

COOPERATIVE PROFESSIONAL DEVELOPMENT PROGRAM

Students who wish to enrich their education with on-the-job engineering experience may enroll in the Cooperative Professional Development Program. In this program full-time study terms are alternated with full-time work assignments in cooperating industries. The program may be entered in either the sophomore or junior years. Some students are employed in the winter-summer work terms and others in the fall-spring work terms. Most of the work assignments are in the Metro-

politan Detroit area on a commuting basis. The "Co-op" program is available in all the undergraduate engineering curricula. A limited number of Co-op Scholarships are available to qualified incoming freshmen. Applications for these scholarships are available through the Co-op Coordinator.

Each student may enroll for one academic course while on work assignment. This must be done with the approval of his academic adviser. Following each work assignment, the student must enroll in Basic Engineering 0250, Engineering Internship. This credit of work will not be counted toward graduation unless the student requests credit from his academic adviser. Each department has assigned a specific faculty member as academic adviser to all College Co-op students within that curriculum.

A report covering each work assignment is required of the student, and his performance on the job is rated by his industrial supervisor. Salaries and other benefits are paid for the time spent on each work assignment. For details and enrollment procedures, contact the College Co-op Coordinator.



ENGINEERING GRADUATE DEGREE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 16. The following additions and amendments pertain to the College of Engineering.

After receiving his credentials from the Office of Admissions, and before registration, the student should contact the graduate adviser in his major department for details of program planning and to discuss requirements and course work.

Graduate Advisers for Specific Departments

Chemical Engineering and Material Sciences: Dr. Lawrence Himmel and Dr. Edward R. Fisher, 128 Engineering Building

Civil Engineering: Dr. John H. Lamb, 667 Merrick Avenue

Electrical Engineering: Dr. Roy O. Sather, 306 Engineering Building

Industrial Engineering and Operations Research: Dr. Leonard R. Lamberson, 632 Putnam Avenue

Mechanical Engineering Sciences: Dr. Ju-Pei Lee, 667 Merrick Avenue

GRADUATE COURSES

Graduate work is classified either as course work, in which students meet as a group, or as research. A student registered for eight to sixteen credits is considered full-time.

MASTER'S DEGREE PROGRAM

The degree of "Master of Science in (major field)" is offered in chemical, civil, electrical, industrial, mechanical and metallurgical engineering. The candidate may be recommended for a degree by a committee of not less than three regular graduate faculty members.

The minimum requirement for the master's degree is forty-five credits under the following degree plans approved by the College:

Plan A consists of thirty-three credits in course work, twelve credits of thesis and a seminar or an oral presentation on the thesis research.

Plan C requires a total of forty-five credits. A thesis is not required. This plan is authorized only in selected areas. Interested students should consult their respective departments.

MAJOR CREDITS

Credits earned in the student's major field are designated as major credits. Of the minimum of forty-five hours of credit required for the master's degree, eight must be in graduate courses in the major (0700 and 0800 series). Also, at least one-half of the course work, exclusive of thesis credit, must be in the major field.

MINOR-COGNATE CREDITS

A minimum of eight credits should be taken in areas other than the student's major.

CANDIDACY

Candidacy is an advanced rank which is recommended by the departmental adviser and authorized by the Engineering Graduate Officer upon evidence of the applicant's superior scholarship, appropriate personal qualities, and promise of professional competence. The applicant must exercise primary responsibility for advancing his rank to "candidate." Eligibility for candidacy is contingent upon the student having completed any prerequisites specified at the time of admission and filing an adviser-approved *Plan of Work* with the Engineering Graduate Officer. In preparing his *Plan*, the student should carefully evaluate his personal and professional objectives as well as all degree and departmental requirements. After the *Plan* has been filed, subsequent major changes must be approved by the adviser. Students enrolled in master's degree programs must file a *Plan of Work* by the time eighteen graduate credits have been earned, or subsequent registration may be denied. In most departments, candidacy should be authorized at this time, also. Approval of candidacy is a necessary but not sufficient requirement for a graduate degree.

THESIS DEGREE PLAN

Students who elect the thesis degree plan (Plan A) are required to file a thesis outline for approval by the adviser and the Engineering Graduate Officer before writing the thesis.

Information about the thesis style, format and number of copies required can be obtained from the adviser or the Engineering Graduate Officer.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy degree is offered by the College of Engineering in these major areas: chemical engineering, civil engineering, electrical engineering, industrial engineering, mechanical engineering sciences and metallurgical engineering. More detailed information may be obtained by contacting the departmental advisers.

A minimum of 135 credits beyond the bachelor's degree is required for the Ph.D. program including forty-five credits for the dissertation. The student's honor point average must be 3.0 or better.

A student need not obtain the Master of Science degree as an intermediate step. If the student fails to meet the Ph.D. requirements, he may transfer the credits toward the Master of Science degree program after passing a qualifying examination.

Candidates for the Ph.D. degree are required to take a proficiency examination in one of the following approved foreign languages: French, German, Russian or Spanish. Applications for these tests may be obtained from the Graduate Division.

Substitution of a language other than the approved languages may be made only for sound academic reasons and must be recommended by the student's departmental graduate committee and approved by the Office for Graduate Studies.

RESEARCH INSTITUTE FOR ENGINEERING SCIENCES

For the training of advanced undergraduate and graduate students, the Research Institute for Engineering Sciences offers an opportunity to participate in scientific programs of current interest and provides exposure to the techniques and practices of modern engineering research. The Research Institute is staffed by faculty from several departments of the College of Engineering as well as adjunct faculty from other universities and industrial research laboratories who are interested in multidisciplinary areas of science and engineering.

Research areas which are under current study include the 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 and the unsteady state electron emission from solid surfaces (excited electron emission). Excellent laboratories featuring molecular beam apparatus, flowing afterglow systems, molecular laser systems and Auger spectrometry using state-of-the-art electronic and vacuum technology are available for research experience.

GRADUATE PROCEDURES AND REGULATIONS

SCHOLARSHIP

A graduate degree is evidence of scholarly attainment, of ability to achieve academic excellence, of critical and creative ability with capacity to apply and interpret what has been learned, and of proper use of the work of others.

Continuance in graduate status is contingent on satisfactory scholarship, that is, grades of B or better. Every effort is made to assist the student whose work suffers as a result of conditions beyond his control.

To be awarded a graduate degree, the student must have achieved an average of at least 3.0 (B) in those courses used to satisfy degree requirements.

REVALIDATION OF CREDIT

Master's Degree

Over-age credits, not to exceed nine, which are between six and ten years old and which were taken at Wayne State University, may be revalidated by special examinations upon

recommendation of the adviser and approval of the Engineering Graduate Officer. A special examination fee of \$5.00 per credit is charged for course revalidation.

GRADUATION

Final Report—A final report on each candidate certifying the completion of degree requirements and accompanied by an updated cumulative record will be submitted to the Engineering Graduate Officer by the major department.

Deadlines—Consult the schedule prepared for each commencement by the Engineering Graduate Office.

Commencement—Information concerning commencement announcements, caps, gowns, invitations, tickets, time and place, assembling and other items of importance will be mailed to the graduate by the Class Board prior to the event.

Attendance at commencement is mandatory for the master's candidate. He may be excused for reasons of personal health, family illness or residence at a distance from Detroit. Request for excused absence should be directed to the Engineering Graduate Office.

COURSES OF INSTRUCTION¹

DIVISION OF ENGINEERING

Basic Engineering (B E)

0100. Introduction to Engineering Design. (0,6). Cr. 3.

Introduction to the methodology of engineering design. Experiences in individual and team projects concerned with interdisciplinary engineering problems. Consideration of problem modeling, solution optimization, and decision-making.

0102. Engineering Systems Analysis I. Cr. 4.

Prereq. or coreq: MAT 0211. Introduction to the use of statistics in engineering analysis. The selection, classification, treatment and analysis of engineering data. Tests of hypotheses, estimation, and linear regression. Use is made of the statistics of frequency distributions, discrete and continuous density functions, sampling distributions.

0204. Engineering Systems Analysis II. Cr. 3.

Prereq: CSC 0280; prereq. or coreq: MAT 0213. The application of numerical methods and computers in the solution of engineering problems. Simulation and optimization methods applied to the design of physical systems.

0220. Thermodynamics. Cr. 4.

Prereq: MAT 0212. The four Thermodynamic Laws and their application in engineering systems.

0240. Introduction to System Dynamics. Cr. 4.

Prereq. or coreq: MAT 0519. A unified engineering study of mechanical, electrical, fluid, and thermal dynamic systems; correlation of the functioning of idealized models to the behavior of real physical systems.

0250. Engineering Internship. Cr. 1 (Max. 6).

Prereq: sophomore standing and consent of coordinator. Offered for S and U grades only. Engineering practice under supervision in cooperative work-study program.

0314. Computer Graphics I. Cr. 4.

Prereq: junior standing, CSC 0280 or equiv. An introduction to on-line and off-line graphic programming systems and computer controlled graphic input-output devices. Applications of computer graphics in a university and industrial environment.

0330. Engineering and Society. Cr. 4.

Prereq: junior standing. The relationship of engineering to society from the Newtonian Revolution to the present; the proper role of future technology.

0390. Directed Study in Engineering Graphics. Cr. 1-4.

Prereq: consent of instructor. Supervised study and instruction in one or more of the following areas: advanced descriptive geometry, computer-graphics, gear and cam drawing, industrial case studies in engineering graphics, pictorial illustration, piping drawing and piping layout, product drawing, schematic drawing.

0414. Computer Graphics II. Cr. 4.

Prereq: B E 0314 or equiv. A continuation of Basic Engineering 0314 with emphasis on interactive CRT Graphic Systems and their applications in Engineering and scientific endeavors.

0496. Research in Urban Engineering Problems. Cr. 3-6 (Max. 6).

Prereq: consent of dean. Interdisciplinary senior research projects oriented toward urban problems. Projects under the direction of faculty committees; use of the general college laboratories.

Chemical Engineering (CHE)

0182. Analysis of Comparable Methods of Experimentation. (1,3). Cr. 2.

Prereq: CHM 0108. Presentation of experimental procedures and research operations, with subsequent discussions and written reports of the analyses made by groups involved in comparable situations.

Required Undergraduate Courses

A grade of C is the minimum acceptable for these required courses. Continuation in sequence courses after receipt of D may be authorized only by the department chairman.

0280. Stoichiometry and Transport Phenomena I. (3,2). Cr. 4.

Prereq: PHY 0218 and CHM 0108. Steady state and transient mass transport. Material balances, stoichiometry, diffusion, bulk transport.

0320. Transport Phenomena II. (2,2). Cr. 3.

Prereq: MAT 0519. Introduction to the transient and steady state transport of momentum, energy and mass in engineering systems. Analytical and empirical methods.

0350. Chemical Process Engineering I. (2,2). Cr. 3.

Prereq: CHE 0320; coreq: CHE 0352. Practical aspects of transport of materials and heat. Piping and pumping systems, metering, heat exchange theory, equipment costs.

0352. Measurements Laboratory. (1,6). Cr. 3.

Coreq: CHE 0350. Laboratory course in the principles and practice of measuring chemical, physical and thermodynamic properties of importance to chemical engineering problems. Technical reports.

0358. Chemical Equilibria. (2,2). Cr. 3.

Prereq: B E 0220. Qualitative and quantitative treatment of homogeneous and heterogeneous phase and chemical equilibria. Use of chemical activities and activity coefficients relating ideal to actual systems. Use of reference states and excess properties of the prediction of equilibrium diagrams and the determination of feasibility of chemical reactions.

0380. Mass Transfer. (2,2). Cr. 4.

Prereq: CHE 0350; coreq: CHE 0382. Quantitative treatment of separation processes in unit operations. Distillation, extraction, and those processes in which there is simultaneous heat and mass transfer.

0382. Chemical Engineering Laboratory. (1,6). Cr. 3.

Coreq: CHE 0380. An integrated experimental study of chemical equilibria, reaction kinetics and rate processes. Laboratory case studies.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0388. Kinetics and Catalysis. (2,2). Cr. 3.

Prereq: CHE 0358. Quantitative treatment of complex homogeneous and heterogeneous chemical reactions and the design of batch, stirred and flow reactor systems.

0420. Chemical Process Engineering II. (2,2). Cr. 4.

Prereq: CHE 0380 and 0388. The overall chemical process. Economic analysis of the process and the optimum-economic design of processes.

0426. Chemical Engineering Research: Organization. (1,3). Cr. 2.

Prereq: consent of chairman. Organization of a research project: literature survey, equipment specification and presentation of a written proposal for the laboratory investigation.

0450. Chemical Process Integration. (2,3). Cr. 3.

Prereq: CHE 0420. Application of engineering and science background to the design of chemical processes. Comprehensive problems deal with sources of data, design principles, and optimization techniques.

0456. Chemical Engineering Research: Investigation. (0,12). Cr. 4.

Prereq: CHE 0426. Laboratory investigation of an approved research project. Conferences and oral reports with adviser.

0460. Process Dynamics and Simulation. Cr. 3.

Prereq: CHE 0380. Application of system dynamics and mathematical modeling to design and analysis of chemical processing systems.

0486. Chemical Engineering Research: Report. (1,3). Cr. 2.

Prereq: CHE 0456. Preparation of a comprehensive written report on the research project completed in Chemical Engineering 0456. Final oral report to the department staff.

Undergraduate Elective Course

0490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman. Select some field of chemical engineering for advanced study and instruction.

Undergraduate and Graduate Elective Courses

0504. (E E 0504) Numerical Methods for Engineers. Cr. 3.

Prereq: MAT 0519 and B E 0204. Solution of ordinary and partial differential equations of engineering by modern numerical methods, including digital computer programming.

0509. (MET 0509) Physical Ceramics. Cr. 3.

Prereq: MET 0260 or equiv. Physical nature and behavior of vitreous and crystalline non-metals. Crystallography and atomic bonding relationships relative to mechanical, thermal, optical, magnetic and electrical properties. Phase equilibria and transformations, interactions in liquid-solid systems, surface properties, and diffusional phenomena.

0511. Properties of Materials. Cr. 3.

Prereq: senior standing, or consent of instructor. Introduction to quantitative methods for the estimation of thermodynamic and transport properties of gases, liquids and solids.

0515. Elements of Nuclear Engineering (MET 0515). (3,3). Cr. 4.

Open only to upper division students. Fundamentals of nuclear energy, including the processes for separation of isotopes from the viewpoint of chemical engineering. Materials of construction, design principles, and energy dissipation from reactors are discussed.

0517. Nuclear Engineering Laboratory (MET 0517). (0,6). Cr. 2.

Prereq. or coreq: CHE 0515. Basic phases of nuclear engineering, including the determination of operating characteristics of nuclear reactors, hazards, and safety practices.

0535. Polymer Engineering I. Cr. 3.

Prereq: MAT 0519. An introductory study and application of fundamental relations between chemical structure and physical properties of high polymers. The preparative processes and manipulation of polymers in the related industrial fields of fibers, plastics, resins, and rubbers.

0537. Polymer Engineering Laboratory. (0,6). Cr. 2.

Prereq. or coreq: CHE 0535. Selected laboratory investigations to show the effect of chemical structure and additives on physical properties or polymer aggregates. Correlation of results incorporated into laboratory reports.

0555. Environmental Science I: Introduction to Air Pollution. Cr. 4.

Prereq: B E 0220 and MAT 0519. Man's natural environment as well as nature's cleansing processes, man-made and natural contamination processes, and man's control over these phenomena through both technological and legal processes.

0559. Atmospheric Transport Phenomena. Cr. 3.

Prereq: B E 0220 or equiv. Formation of atmospheric conditions; mathematical modeling of environmental systems by means of transport theories.

0566. Multicomponent Separation Processes. Cr. 3.

Principles involved in separation of multicomponent mixtures, mathematical simulation, design of units. Primary emphasis on distillation.

0571. (MET 0571) Case Studies in Material Science. Cr. 3.

Prereq: MET 0569. Case studies involving product design, product evaluation, specifications, safety aspects, accident reconstruction.

0572. (E E 0572) Electrophysiology (MES 0572). Cr. 3.

Prereq: E E 0381, 0558 or consent of instructor. Mathematical techniques to describe the electrical behavior of nerve and muscle. Natural electrical sources in the physiological system; propagation of energy to various parts of the system.

0575. Pyrodynamics. Cr. 3.

Prereq: senior standing. The study of decomposition, ablation, and combustion processes. Emphasis placed on the kinetics and the simultaneous heat and mass transfer occurring during these processes.

0585. Vacuum Technology (MET 0585). Cr. 3.

Prereq: PHY 0220 or consent of instructor. Vacuum techniques, flow of gases through tubes and orifices, operation of pumps and manometers, vacuum materials, vacuum systems.

0595. Special Topics in Chemical Engineering I. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in chemical engineering. Topics to be announced in Schedule of Classes.

0625. Advanced Process Dynamics and Simulation. Cr. 3.

Prereq: CHE 0460. Adaptation of the principles of process analysis and simulation to complex chemical processing systems. Discussion of topics related to process computer control.

0635. Polymer Engineering II. Cr. 3.

Prereq: MAT 0519. A detailed analysis of polymer processing. Rheology of polymers, flow in tubes, calendaring, extrusion, injection molding, surface phenomena, and polymer crystallization.

0645. Biochemical Engineering. Cr. 3.

Prereq: consent of chairman. An introductory study of the principles of chemical engineering, biochemistry and biology which are essential for the design of industrial systems involving biological transformations.

0655. Strategy of Process Engineering. Cr. 3.

Prereq: consent of chairman. Economic evaluation of chemical, metallurgical, and petroleum processes and methods for determining the optimal conditions for their operation.

0665. Electrochemical Engineering. Cr. 3.

Prereq: CHM 0544; CHE 0380 and 0388. Advanced study of the design and operation of industrial electrochemical processes, including the treatment of problems involving simultaneous mass-transfer, heat-transfer and chemical reaction.

0675. Heterogeneous Equilibria (MET 0675). Cr. 3.

Prereq: CHE 0358. An intermediate study of the phase diagrams of importance in chemical and metallurgical engineering and of the principles involved in such equilibria.

0685. (MET 0685) Corrosion. Cr. 2.

Prereq: senior standing in engineering. Advanced study of the theories of corrosion of materials, and applications of these theories in the engineering field. Analysis of industrial problems. Comprehensive engineering reports.

Required Graduate Courses for M.S. and Ph.D. Degrees

Enrollment in the following courses is limited to graduate students. A grade of B is the minimum acceptable for these required courses.

0710. Advanced Engineering Mathematics. Cr. 4.

Prereq: MAT 0519 or equiv. Presentation, evaluation and use of mathematical methods within the framework of engineering problems; including ordinary and partial differential equations, transforms and vector operations.

0720. Advanced Transport Phenomena I. Cr. 4.

Prereq: CHE 0710 or equiv. Basic properties of heat, mass and momentum transfer in engineering systems; fundamental equations, formulation and solution of boundary value problems.

0730. Advanced Thermodynamics. Cr. 4.

Prereq: BE 0220 or consent of chairman. Principles of thermodynamics with emphasis on application of the auxiliary functions to chemical equilibria of fluid states.

0740. Advanced Kinetics. Cr. 4.

Prereq: BE 0220 and CHE 0388 or consent of instructor. Basic properties of reacting systems including the steady state approximation, the relationship of thermodynamics to kinetics, the treatment of coupled reaction problems and design of chemical reactors.

Required Graduate Course for Ph.D. Degree

0750. Advanced Transport Phenomena II. Cr. 4.

Prereq: CHE 0720. Coupled transport phenomena in engineering systems; simultaneous fluid flow with heat and mass transfer, transport in multiphase systems and review of correlation methods.

Elective Graduate Courses

0770. Phase Equilibrium Thermodynamics. Cr. 3.

Prereq: CHE 0730. Applications of thermodynamic principles to phase equilibrium problems encountered in design practice.

0780. Separation Processes. Cr. 3.

Prereq: CHE 0380. Principles involved in the separation of chemical mixtures. Mathematical modeling and application to design problems.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman and engineering graduate officer. Library investigation of an approved project in chemical engineering. Independent study, conferences with supervisor, and preparation of a comprehensive report.

0795. Special Topics in Chemical Engineering II. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in chemical engineering. Topics to be announced in Schedule of Classes.

0809. (MET 0809) Advanced Ceramics. Cr. 3.

Prereq: CHE or MET 0509. Advanced and theoretical topics in non-metallic materials. Topics in sintering and pressing, sintering in the presence of a liquid phase, structure of ceramics.

0811. Energy Transfer Processes. Cr. 4.

Prereq: CHE 0710 or equiv. An advanced presentation of the microscopic modeling of energy transfer processes. Examples drawn from vibrational relaxation, molecular lasers and advanced combustion processes.

0815. Advanced Nuclear Engineering (MET 0815). Cr. 3.

Prereq: CHE or MET 0515 or consent of chairman. Design, theory, and operation of nuclear reactors from the standpoint of chemical and metallurgical engineering. Design based on requirements for heat removal, burn-up, and materials. Fermi Age Model and Two-Group Theory with modifications for reflectors and control rods. Transient operation and instrumentation.

0831. (MET 0831) Interaction of Radiation and Matter. Cr. 3.

Prereq: MAT 0521 and PHY 0686 or MET 0821, or consent of instructor. Development of basic aspects of interaction of various radiations with matter. Nature of radiation and its propagation. Applications include reactor shielding, nuclear cross sections.

0835. Polymer Engineering III. Cr. 3.

Prereq: CHE 0535 or consent of instructor. Processes and preparation of condensation and addition polymers for the fields of fibers, plastics, and rubbers. Kinetics of rates of conversion, degree of polymerization, and structural identity and attitudes as related to conditions of polymerization.

0840. Advanced Kinetics II. Cr. 4.

Prereq: CHE 0740. Chemical kinetics; reactions in flow fields (shock waves and flames), photochemical and chemiluminescent reactions, diffusion controlled reactions and the numerical solution of coupled chemical reactions.

0845. Plant Design. (2,2). Cr. 3.

Prereq: consent of instructor. Organization of the literature science, economics, and engineering for the development of chemical or metallurgical process. Comprehensive calculative drawings, and reports.

0855. Crystallization. Cr. 3.

Prereq: CHE 0720. Principles of crystallization and heterogeneous equilibria applied to evaporation and crystallization.

0870. Heterogeneous Flow Systems. Cr. 3.

Prereq: CHE 0720. Various flow systems which involve two phases. Simultaneous flow of liquids and gases, liquids and solids, and solids and gases; fluidization, boiling and moving boundary systems.

0896. Research. Cr. 1-9 (Min. 4, max. 9).

Prereq: consent of chairman and engineering graduate officer. Library and laboratory investigation of an approved proposal for advanced research project. Conferences and periodic oral progress reports. Comprehensive report of entire project upon completion.

0899. Master's Thesis Research and Direction. Cr. 1-6 (12 required).

Prereq: consent of adviser.

0998. Proposals, Grants and Contracts. Cr. 1.

Open only to Ph.D. applicants. Writing of a brief proposal outside student's dissertation area; defense and refereeing of proposals.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of chairman of departmental graduate committee. No more than ten credits may be elected before doctoral candidacy is obtained.

Civil Engineering (C E)

0307. Surveying I. (3,3). Cr. 4.

Prereq: B E 0204 for Civil Engineering students. Principles of plane surveying; measurement of horizontal and vertical distance, directions and angles, traverses, areas.

0308. Surveying II. (3,3). Cr. 4.

Prereq: C E 0307. Route surveys, parabolic and circular curves, topography, construction surveys, public land..

0325. Applied Fluid Mechanics. Cr. 3.

Prereq: C E 0401, MES 0230 or consent of instructor. Experimental verification of theories of fluid mechanics as encountered in civil engineering problems. Specific problems include flow under a sheet pile, one-dimensional consolidation, flow in pipes and pipe systems, use of venturi and orifice meters.

0401. Civil Engineering Analysis. Cr. 4.

Prereq: MAT 0519; prereq. or coreq: B E 0204. Numerical methods applied to linear systems; matrix techniques, linear programming, linear regression; finite difference techniques applied to partial differential equations.

0421. Water Resources. Cr. 4.

Prereq: upper division standing. Fundamentals in the planning of water resources on a basinwide scope including water use and reuse, legal considerations, economics, and water resource principles.

0430. Structures I. Cr. 4.

Prereq: MES 0230 and C E 0401. Mechanics of engineering struc-

tures. Equilibrium analysis and deformations of trusses and beams. Introduction to design of tension and flexural members. Computer applications.

0433. Structures II. Cr. 4.

Prereq: C E 0430 and MET 0130. Uniform and non-uniform torsion of non-circular bars, stability of beams and beam-columns, plastic analysis.

0434. Structures III. Cr. 4.

Prereq: C E 0433. Analysis of structural systems, force and displacement methods, deflections, reciprocal relations and influence lines, steel design problem, computer applications.

0436. Reinforced Concrete I. Cr. 4.

Prereq: civil engineering students, C E 0434; engineering technology students, CET 0311. 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.

0441. Building Systems. (3,3). Cr. 4.

Prereq: C E 0436. Relationship of cost to type of structural system chosen and to framing plan. Constraints imposed on structural system by other building components and user needs.

0445. Civil Engineering Materials I. (2,3). Cr. 3.

Prereq: MES 0230; prereq. or coreq: C E 0401. Stress-strain-time-temperature properties of elastic, plastic, and visco-elastic single component materials. Laboratory experiments and demonstrations to determine material constants for steel, plastics and asphalt.

0446. Civil Engineering Materials II. (2,3). Cr. 3.

Prereq: C E 0445. Stress-strain-time-temperature properties of multi-component materials and their constituents. Laboratory experiments and demonstrations to determine material properties for various soils, portland cement concrete, bituminous concrete and lightweight construction materials.

0452. Engineering Properties of Soils. Cr. 4.

Prereq: C E 0446. Strength and deformation characteristics of soils and the factors that determine them. Stress distribution, water flow through permeable media.

0490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman. Supervised study and instruction in civil engineering. Written report required.

0497. Seminar in Civil Engineering. Cr. 2.

Prereq: senior standing. Discussion and reports on current topics in the field of civil engineering.

0501. Architectural Drawing I. (2,6). Cr. 4.

Prereq: consent of instructor. Graduate credit for art education, industrial education, and home economics majors only. Creating and designing plans and elevations as related to residences. Functional room layouts. Study of styles and construction. Architectural graphic standards, architectural working drawings with dimensions, sections and details.

0502. Architectural Drawing II. (2,6). Cr. 4.

Prereq: consent of instructor. Graduate credit for art education, industrial education and home economics majors only. Theory and construction of perspectives. Perspective rendering in color and presentation procedures. Study of the scale model and building materials. Specifications and business dealings with the architect and contractor.

0510. Hydrology. Cr. 4.

Prereq: BE 0102 or consent of instructor. Precipitation and runoff, probability applications to hydrological data. Stream flow and storage reservoirs; flood control and flood routing; drainage; ground water and well flows; evaporation and water budgets.

0514. Refuse Collection. Cr. 3.

Prereq: consent of instructor, statistics. Fundamentals in the planning of refuse collection systems. Legal, economic and public health consideration.

0517. Refuse Disposal. Cr. 4.

Prereq: consent of instructor. Disposing of solid wastes. Selecting disposal methods, sanitary landfills, incineration, composting, compression and salvage of refuse.

0521. Environmental Engineering. Cr. 4.

Prereq: CE 0421. Unit operations and processes of water quality improvement. Collection, processing, and disposal of solid wastes. Introduction to air pollution.

0522. Sanitary Chemistry. Cr. 4.

Prereq: CE 0521 or consent of instructor. Fundamentals of chemical principles and their application to unit operations and processes encountered in the treatment of water and waste water.

0525. Sanitary Engineering Laboratory. (2,6). Cr. 4.

Prereq: CE 0521 or consent of instructor. Physical, chemical and biological analyses of water and waste water and discussion and interpretation of results as they pertain to treatment processes and stream pollution control.

0528. Sanitary Engineering Design. (2,6). Cr. 4.

Prereq. or coreq: CE 0521. Design principles of water and waste water treatment plants. Plant layouts and the design of elements of the plant.

0533. Advanced Structural Analysis. Cr. 4.

Prereq: CE 0434 or consent of instructor. Moment distribution. Effect of axial loads on stiffness of flexural members. Buckling of trusses and rigid frames. Introduction to plastic analysis. Matrix method of analysis. Computer applications.

0537. Reinforced Concrete II. Cr. 4.

Prereq: CE 0436 or consent of instructor. Theory and design of two-way and flat slabs, yield line theory, footings and retaining walls, composite beams, box girders.

0538. Prestressed and Precast Concrete. Cr. 4.

Prereq: CE 0436. Principles of prestressing and precasting concrete. Design and analysis of statically determinate and indeterminate prestressed concrete members.

0543. Advanced Structural Design. (2,6). Cr. 4.

Prereq: CE 0441 or consent of instructor. Design of contemporary building systems; constraints imposed by architectural, economic, construction and service equipment considerations.

0550. Soil Mechanics. Cr. 4.

Prereq: consent of instructor. Study of soil types, natural soil deposits, conditions for formation of soils, grain properties, aggregate properties. Relations between various indices and soil characteristics.

0551. Applied Soil Mechanics I. Cr. 4.

Prereq: consent of instructor. Application of principles of soil mechanics to engineering design and construction with respect to footings, rafts, retaining walls, anchored bulkheads, open cuts, braced cuts.

0552. Applied Soil Mechanics II. Cr. 4.

Prereq: CE 0551. Continuation of Civil Engineering 0551. Foundation vibrations, effects of high explosive blasting, pile types and uses, pile installation techniques, pile foundations.

0553. Applied Soil Mechanics III. Cr. 4.

Prereq: CE 0551. Design, analysis, and construction of earth dams, rockfill dams, and sheetpile cofferdams.

0560. Transportation Engineering I. Cr. 4.

Prereq: CE 0401. Transportation functions; transportation systems including land, air, and marine modes; transportation system elements including travelled way, vehicle, controls and terminals; techniques of transportation system planning, design, economics, evaluation and selection.

0564. Traffic Engineering I. Cr. 4.

Prereq: statistics, consent of instructor. An analysis of parameters of traffic flow, their descriptions, measurements, measuring techniques. Stream flow elements, volume, density, speed. Intersection elements; delay, capacity, utilization. Corridor elements; traffic demand, terminals, accidents, drivers, vehicles. Design of traffic engineering systems.

0565. Bituminous Materials and Mixtures. (2,3). Cr. 3.

Prereq: CE 0446. Sources, production, properties, and testing materials; theory and design of bituminous mixtures.

0567. Transportation Engineering II. Cr. 4.

Prereq: CE 0560. Transportation systems analysis using graph theory, network flow, optimizing algorithms, queuing theory and simulation of transportation demand models.

0571. Transportation Design. (3,6). Cr. 5.

Prereq: CE 0452 and 0567. Characterization and description of the design process including driver, vehicle and roadway characteristics; determination of the elements of the transportation system, planning, economics; geometric design; drainage and roadside development; subgrade structure; construction and maintenance of the system; decision theory and statistics in system design.

0580. Legal and Ethical Aspects of Engineering. Cr. 3.

Open to seniors and graduate students only. The relation of the engineer to society, national codes of practice, ethics, law of contracts, agency, negotiable instruments and sales.

0581. Legal Aspects of Engineering Problems. Cr. 4.

Open to seniors and graduate students only. Business of contracting, construction, liabilities of owner, architect, engineer and contractor. Rights in land, boundaries, and foundations. Case studies.

0582. Legal Aspects of Transportation. Cr. 3.

Open only to seniors and graduates. Present and emerging legal issues concerning various aspects of urban and rural transportation problems; highway location, traffic control, driver licensing, public utility relocation, airport zoning. Case studies.

0595. Special Topics in Civil Engineering I. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Specific Topics credit in any one degree program. Topics to be announced in Schedule of Classes.

0601. Construction Organization and Management. Cr. 4.

Prereq: consent of instructor. An introduction to the organization and management of design and construction firms. Organizational and managerial theories. Problems of organization management, operation and control of engineering systems, case studies.

0602. Civil Engineering Decision Processes. Cr. 4.

Prereq: basic statistics or consent of instructor. Application of probability, statistics and decision processes to civil engineering problems.

0603. Analytical Methods in Design and Construction Systems. Cr. 4.

Prereq: consent of instructor. Analytical and quantitative methods useful for the organization, management, operation and control of design and construction systems. Linear programming, inventory control, waiting line theory and optimization techniques. Computer programming and applications.

0605. Economics in Construction and Design Systems. Cr. 4.

Prereq: consent of instructor. The economics of construction and design systems. Principles of managerial economics, financial mathematics, cost optimization techniques and their programming. Development, analysis and evaluation of economic alternatives.

0607. Estimation and Bidding Theory. Cr. 4.

Prereq: CE 0603. Estimation and bidding methods and procedures. Strategies for estimating and bidding in competitive environments. The economic effects of the methods of estimating and bidding. Forecasting and prediction theory. Computer applications.

0613. Engineering Hydraulics. Cr. 4.

Prereq: MES 0230 or equiv. Fluid mechanics applied to engineering problems. Dimensional analysis and similitude. Open channel flow, non-uniform flow and hydraulic structures.

0663. (I E 0663) Introduction to Transportation Science. Cr. 4.

Prereq: IE 0557 or equiv. Theoretical developments in operations research for describing traffic flow for highway, railway and advanced automated systems of ground transport.

Enrollment in the following courses is limited to graduate students.

0701. Scheduling and Control Theory. Cr. 4.

Prereq: CE 0602 and 0603 or consent of instructor. Network theory; scheduling of project operations; time computations; and resource allocation. The PERT model; the CPM model; and the QUEING model. A cost control and accounting model for project management.

0703. Data Processing in Construction and Design Systems. Cr. 4.

Prereq: CE 0701. The basic concepts of data processing and their integrating role in construction and design systems. Development of information systems and the components of accounting, payroll, scheduling and control. Computer applications.

0705. Projects in Construction and Design Systems. Cr. 4.

Prereq: CE 0703. Project development, organization, management and operation. Applications of qualitative and quantitative techniques in construction and design projects. Introduction of modern operational methods and use of computers in actual project management.

0710. Water Resource Management. Cr. 4.

Prereq: advanced statistics and consent of instructor. Water re-

source planning. Application of probability and operation research techniques for planning of water resources including engineering analysis, economic objective and water resource principles.

0711. Random Processes in Engineering. Cr. 4.

Prereq: consent of instructor. Random processes in engineering with emphasis on those encountered in civil engineering such as earthquakes, water waves, wind. Theory and application.

0720. Environmental Engineering Operations and Processes I. Cr. 4.

Prereq: CE 0521. Theoretical aspects and applications of various operations and processes of importance in pollution control including sedimentation, floatation, coagulation, softening, and filtration through granular media.

0721. Environmental Engineering Operations and Processes II. Cr. 4.

Prereq: CE 0720. A continuation of Civil Engineering 0720 with concentration on secondary and tertiary treatment processes and theoretical considerations in absorption, disinfection, and other processes.

0722. Industrial Waste Treatment. Cr. 4.

Prereq: CE 0721 or consent of instructor. A study of the sources of specific industrial waste waters and their treatability by physical, chemical and biological processes, including the industries' obligation in the prevention of stream pollution. Problems and solutions involved in combined treatment of industrial and domestic waste waters.

0725. Advanced Sanitary Engineering Laboratory. (2,6). Cr. 4.

Prereq: CE 0525. Advanced chemical and biological analyses of water and waste water. Special problem relating to the analysis of a specific water, or of a domestic or industrial waste water.

0726. Stream Sanitation. Cr. 4.

Prereq: CE 0525 and 0721 or consent of instructor. The study of natural watercourses in relation to natural and man-made pollution. Techniques of evaluating the self-purification capacity of streams and the determination of permissible waste water effluent levels.

0730. Structural Mechanics I. Cr. 4.

Prereq. or coreq: CE 0533 and MAT 0520. Theory of bending and torsion of bars, beams on elastic foundations. Introduction to theory of thin plates.

0731. Structural Mechanics II. Cr. 4.

Prereq: CE 0730; prereq. or coreq: MAT 0521. Continuation of Civil Engineering 0730. Theory of thin plates. Stability of bars, plates, and civil engineering structures.

0732. Statically Indeterminate Structures I. Cr. 4.

Prereq: CE 0533 or consent of instructor. Application of structural analysis algorithms in matrix form to the analysis and design of long span bridges and multi-story buildings. Coordinate transformations; analysis by substructures and by recursion; computer use.

0733. Statically Indeterminate Structures II. Cr. 4.

Prereq: CE 0732. Analysis of nonlinear structures. Matrix analysis. Non-linear materials, large deflection theory.

0734. Analysis and Design of Shell Structures. Cr. 5.

Prereq: CE 0731 and 0732. Analysis and design of folded plate

structures and structures composed of shells of single and double curvature.

0735. Behavior of Structures Under Dynamic Loads. (4,0). Cr. 4.
Prereq: consent of instructor. Dynamic analysis of civil engineering structures, lumped-mass and distributed mass systems, linear and non-linear systems, approximate methods of analysis, computer applications.

0736. Random Vibration of Structures. Cr. 4.
Prereq: CE 0735 and consent of instructor. Random vibration of structural systems by means of the correlation and spectral theories of random processes. Experimental techniques of measurement of correlation quantities.

0737. Finite Methods of Structural Analysis. Cr. 4.
Prereq: consent of instructor. Matrix analysis, force and displacement methods; finite element approach with applications; finite difference analysis and applications.

0738. Analysis of Structures by Models. (2,6). Cr. 4.
Prereq. or coreq: CE 0732. Theory of structural models, experimental verification of deflection theory. Maxwell's Law. Mechanical analysis of stresses in statically indeterminate structures. Deformeter systems, model materials and method of fabrication. Determination of deflections and temperature stresses by direct method.

0739. Plastic Analysis and Design of Steel Structures. Cr. 4.
Prereq: consent of instructor. Structural properties of ductile and strain hardening materials, moment rotation characteristics of structural members, equilibrium methods of analysis, mechanism methods, upper and lower bound theorems, design of beams and frames, limitations of the theory.

0740. Optimization of Structural Designs. Cr. 4.
Prereq: consent of instructor. Optimization techniques applied to design of structural systems.

0751. Mechanical Properties of Soils. Cr. 4.
Prereq: consent of instructor. Investigation of the theories of strength and deformation characteristics of soils.

0752. Advanced Experimental Soil Mechanics. Cr. 4.
Prereq: consent of instructor. Elaboration of the theoretical background and critical examination of the methods and techniques used in laboratory testing of soils.

0762. Traffic Engineering II: Control and Operation. Cr. 4.
Prereq: CE 0564. Traffic control theory and application. Traffic regulation rationales, laws and ordinances; speed control, intersection control, flow control, parking control. Evaluation techniques; investigations, design and application of control devices, statistical analysis, administration.

0763. Urban Transportation Planning. Cr. 4.
Prereq: CE 0567 or consent of instructor. Analyses of urban transportation characteristics and studies. System demand; origin-destination study techniques, land use, parking, demand projections. System capabilities; use studies, transit surveys, terminals, economics. System selection, streets and freeways, transit systems, administration, city planning, finance.

0764. Economic Analysis in Transportation Systems Planning (IE 0764). Cr. 4.
Prereq: ECO 0102 and consent of instructor. Application of en-

gineering economy and price theory in optimization of transportation systems designs functioning primarily in an urban environment; analysis of congestion costs, externalities, primary and secondary costs and benefits, and peak period pricing; case studies.

0765. Mass Transportation Systems. Cr. 4.
Prereq: CE 0566. Design and operation of alternate systems of mass transportation. Rail rapid transit, bus systems, other systems; service capabilities, operating characteristics, public demand, advantages and disadvantages, economics, system coordination.

0768. Traffic Models. Cr. 4.
Prereq: CE 0765. A study of models and model types applied to the problem of traffic flow and transportation analysis. Traffic assignment, modal splits, theories of traffic flow, simulation, optimization, systems analysis.

0790. Directed Study. Cr. 1-9 (Max. 9).
Prereq: consent of adviser and engineering graduate officer.

0795. Special Topics in Civil Engineering II. Cr. 1-4.
Prereq: consent of instructor. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in civil engineering. Topics to be announced in Schedule of Classes.

0796. Research. Cr. 1-9 (Max. 9).
Prereq: consent of adviser and engineering graduate officer.

0797. Seminar. Cr. 1.
Prereq: consent of adviser. Current developments in research and practice in the field of civil engineering.

0824. Biochemical Aspects of Waste Treatment. Cr. 4.
Prereq: four credits in organic chemistry, four credits in biochemistry, and CE 0721. Applications of the principles of biochemistry, including microbial metabolic cycles, enzyme systems, inhibitors and electron transport mechanisms important to the study of biological waste treatment processes.

0827. Physio-Chemical Principles Applied to Water and Waste Treatment. Cr. 4.
Prereq: eight credits in chemistry or CE 0522. Discussions of the thermodynamic, kinetic and colloidal properties of impurities, including surface chemistry and coagulation of colloidal systems in treatment systems.

0833. Analysis and Design of Multistory Structures. Cr. 4.
Prereq: CE 0732 and 0739. Elastic analysis. Wind loadings. Plastic analysis and design. Computer used in problem solution. Case studies of current designs.

0835. Reliability Theory of Structures. Cr. 4.
Prereq: CE 0736. Probabilistic description of complex structural systems subject to random inputs. Analytical construction and experimental measurements of input and output probability functions.

0836. Advanced Random Analysis of Structures. Cr. 4.
Prereq: CE 0736. Generalization of the concepts of correlation theory and development of techniques of structural analysis by means of complex variables. Deterministic and random systems.

0837. Underwater Structures. Cr. 4.
Prereq: CE 0736. Importance of underwater structures; problem in analysis and design.

0851. The Bearing Capacity of Soils. Cr. 4.

Prereq: consent of instructor. Theoretical development of the bearing capacity theories, contact stress distributions and the development of plastic zones.

0852. Lateral Earth Pressures. Cr. 4.

Prereq: consent of instructor. Theoretical development of the lateral earth pressure theories on retaining structures and tunnels.

0860. Traffic Flow Theory. Cr. 4.

Prereq: CE 0762. Models of car following behavior and resultant stream flow processes with probabilistic headway distributions and reaction characteristics. Stream analyses as affected by vehicle entry and departure from queuing theory models of delay, inventory and other stochastic processes.

0861. Transportation Engineering Systems Analysis (I E 0861). Cr. 4.

Prereq: CE 0566. Techniques of systems engineering and operations research applied to the prediction of demand, development and evaluation of alternatives for transportation systems composed of various land, air and marine modes.

0862. Transportation Engineering Systems Design I. Cr. 3.

Prereq: CE 0765, IE 0558 or consent of instructor. Applications of fundamentals of engineering, planning, economics, psychology, operations research, to a specific major transportation problem by an interdisciplinary group of students working as a team.

0863. Transportation Engineering Systems Design II. Cr. 3.

Prereq: CE 0862. Continuation of Civil Engineering 0862.

0864. Transportation Engineering Systems Design III. Cr. 3.

Prereq: CE 0863. Continuation of Civil Engineering 0863.

0895. Special Topics in Civil Engineering III. Cr. 1-4.

Prereq: consent of adviser. Maximum of six credits in Special Topics may be earned in any one degree program. Topics to be announced in Schedule of Classes.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0997. Doctoral Seminar. Cr. 2-6 (Max. 6).

Prereq: consent of doctoral adviser; coreq: CE 0999.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser. Maximum of ten credits may be elected before doctoral candidacy is obtained.

Electrical Engineering (E E)

0300. Introduction to Electrical Engineering. Cr. 4.

Prereq: PHY 0218 and MAT 0519. Open only to non-majors. Mesh-current and node-voltage analysis. Sinusoids and phasors; impedance and transfer function concepts; impedance matching; diodes and transistors. Electronic amplifiers and application to instrumentation.

0401. Network Analysis I. Cr. 4.

Prereq: PHY 0218 and MAT 0519. Network topology, mesh and

nodal analysis, total response of networks, sinusoidal steady-state analysis, frequency response, network theorems, three-phase networks.

0302. Electrical Circuits Laboratory I. (1,3). Cr. 2.

Prereq: EE 0300 or 0301. Introduction to electrical and electronic instrumentation with applications to measurements in simple electrical networks.

0351. Electronic Circuits I. (4,0). Cr. 4.

Prereq: EE 0300 or 0301 for electrical engineering students; EET 0331 or 0335 for electrical engineering technology students. An introduction to the behavior of semi-conductor and electron devices. Graphical and small-signal analysis. Single-stage circuits.

0352. Electronics Laboratory I. (1,3). Cr. 2.

Prereq: EE 0302 and 0351 for electrical engineering students; EET 0336 and EE 0351 for electrical engineering technology students. Capabilities and uses of basic electronic instruments. Experimental investigation of electron and semiconductor devices and their behavior in single-stage circuits.

0381. Electromagnetic Theory I. Cr. 4.

Prereq: junior standing. Static electric and magnetic fields and fields of steady currents using vector methods. Introduction to Maxwell's equations.

0403. Noise and Sound Control in Environmental Engineering. Cr. 3.

Prereq: junior or senior standing in engineering. Principles of acoustics, sound, and noise: acoustical factors in engineering, architecture, and urban-renewal problems; acoustical instrumentation; control of sound and noise; assigned field problems.

0431. Network Analysis II. Cr. 4.

Prereq: EE 0300 or 0301. Complex frequency analysis, $z(s)$ and $Y(s)$ transfer functions, pole-zero configurations, Laplace transform analysis of networks, transform networks, Fourier series analysis, networks response to periodic excitation.

0435. Transmission of Energy and Signals. Cr. 4.

Prereq: EE 0381 and 0431. Theoretical consideration of uniform lines over full-frequency range. Transmission equations, line parameters, termination, distortion, reflection, and loading. Two-terminal-pair networks.

0436. Electrical Circuits Laboratory II. (0,6). Cr. 2.

Prereq: EE 0435. Experimental investigation of the transient and high frequency characteristics of electrical devices, networks, and transmission lines.

0441. Applied System Theory. Cr. 4.

Prereq: EE 0431. Formulation of equilibrium equations for interactive systems in both classical and state-space form. Linear incremental concepts, general numerical solutions.

0447. Control Systems I. Cr. 4.

Prereq: EE 0351 and 0441. Linearization techniques, steady-state errors, control-system specifications, frequency-response and root-locus techniques for meeting specifications; introduction to compensation.

0451. Electronic Circuits II. Cr. 4.

Prereq: EE 0351 and 0431. A continuation of Electrical Engineering 0351 which focuses attention on multistage amplifier and special-purpose circuits.

0452. Electronics Laboratory II. (1,3). Cr. 2.

Coreq: EE 0451. Laboratory investigations and design of multi-stage amplifier and special-purpose circuits.

0455. Electrical Engineering Materials. Cr. 4.

Prereq: EE 0381 and PHY 0220. A study of the science of materials and an interpretation of the electrical properties which are important in the study of electrical devices.

0466. Computer Aided Design. Cr. 4.

Prereq: EE 0351. Computer solution of linear and nonlinear systems by computer-aided design languages such as LISA and PCAP.

0477. Introduction to Communication Theory. Cr. 4.

Prereq: BE 0102 or equiv., EE 0431. Spectral analysis, principles of modulation, signal filtering and detection, elements of information theory, communication systems.

0481. Electromagnetic Theory II. Cr. 4.

Prereq: EE 0381. Solution of boundary value problems by analytic methods. Electric fields in dielectric media, magnetic properties of matter, time dependent fields, Faraday's law of induction, Maxwell's equations, wave equations, retarded potential, Poynting vector, skin effect, field-circuit relations.

0490. Directed Study. Cr. 1-3 (Max. 6).

Prereq: senior standing; consent of adviser. Supervised study and instruction in the field selected by the student. An outline of proposed study must be submitted to and approved by instructor prior to election of course.

0497. Seminar. Cr. 2.

Prereq: senior standing in electrical engineering. Reports, discussions of current topics of special interest in electrical engineering.

0501. Electrical Energy by Direct Conversion. Cr. 4.

Prereq: EE 0381 and PHY 0220. Methods of converting thermal, nuclear, solar, and chemical energy directly into electrical energy. Characteristics of thermoelectric devices and materials, thermionic converters, magnetohydrodynamic engines, photovoltaic devices, and fuel cells.

0504. Numerical Methods for Engineers (CHE 0504). Cr. 3.

Prereq: MAT 0519 and BE 0204. Ordinary and partial differential equations of engineering by modern numerical methods, including digital computer programming.

0514. Electric Power System Analysis. Cr. 4.

Prereq: EE 0431. Electric power transmission and distribution systems, equivalent circuits and models of electric power systems components, per-unit representation load-flow determination in simple power networks, analysis using symmetrical components.

0543. Electric Energy Systems Engineering. Cr. 4.

Prereq: EE 0441 or consent of instructor. Transmission capacity, load characteristics, power frequency control. Energy system component analysis and modeling. Steady-state analysis, load-flow problem and algorithms, optimal dispatch.

0547. Control Systems II. Cr. 4.

Prereq: EE 0447. Continuation of cascade and feedback compensation techniques using root-locus and frequency-response methods, multiloop systems, describing functions and phase-plane techniques; introduction to the state-space formulation and Liapunov's direct method.

0548. Systems and Control Laboratory. (0,6). Cr. 2.

Prereq: EE 0447. Response of electromechanical devices and mechanisms in open- and closed-loop systems. Cascade and feedback compensation techniques. Projects involving hydraulic and pneumatic systems can be arranged.

0551. Solid-State Electronics I. Cr. 4.

Prereq: EE 0381 and PHY 0220. Physical basis for band structure in solids with particular emphasis on semiconductors. Extrinsic and intrinsic semiconductors. Static and dynamic behavior of P-N junction. Bipolar and unipolar transistors. Emphasis on principles and model of solid-state electronics devices.

0552. Solid State Electronics Laboratory. (0,6-12). Cr. 2-4.

Prereq: EE 0551 or consent of instructor. Experimental projects on solid state materials and devices. Experiments on material preparation, characterization, fabrication and parameter measurements of devices.

0553. Communications Circuits. Cr. 4.

Prereq: EE 0451. Amplitude, frequency, and pulse modulation; detection; operational amplifiers; introduction to linear integrated circuits.

0556. Pulse Circuits. Cr. 4.

Prereq: EE 0431 and 0451. Theoretical study of wave-shaping circuits, timing circuits, and trigger circuits. Theory, production, and utilization of pulses. Laboratory demonstrations.

0557. Solid State Electronics II. Cr. 4.

Prereq: EE 0551. Advanced concepts of the electronic properties of solids with an introduction to energy band theory. Application to the tunnel diode, semiconductor surfaces and bipolar and field effect transistors.

0558. (MES 0558) Engineering Physiology (IE 0553). Cr. 3.

Prereq: senior standing or consent of instructor. The basic principles of human physiology presented from the engineering viewpoint. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by simple mathematical models when feasible.

0559. (MES 0559) Bioinstrumentation (IE 0559). Cr. 3.

Prereq: EE 0300 or 0301, EE 0558. Engineering principles of physiological measurements, signal conditioning equipment, amplifiers, recorders and transducers. Recent advances in instrumentation.

0560. Electronic Analog Computers I. Cr. 4.

Prereq: EE 0351 and 0431. Theory and design of electric computers of the analog type. Basic principles and techniques employed. Considerations of various mathematical operations and the circuits which will perform them.

0561. Electronic Analog Computers II. Cr. 4.

Prereq: EE 0447 and 0560. Theory and solution of partial differential equations and simultaneous algebraic equations on the analog computer. Simulation of stationary and non-stationary random processes. Error analysis of computer components.

0567. Bioelectronics I (MES 0567). (2,3). Cr. 3.

Prereq: EE 0559 or consent of instructor. Investigation of approved research project in the area of bioelectronics.

0568. Switching Circuits I. Cr. 4.

Prereq: senior standing. The basic principles of switching circuits.

for use in digital computer circuits, digital communication, feedback control systems, and other applications.

0569. Digital Laboratory I. (1,3). Cr. 2.

Prereq. or coreq: EE 0568. Laboratory experiments pertaining to combinational circuits and components such as AND, OR, NAND, NOR, INVERTERS, and EXCLUSIVE-OR gates.

0571. Statistical Communication Theory. Cr. 4.

Prereq: EE 0477. Random signals and noises, optimal signal detection and filtering, transmission of information, modern communication techniques as applied to decision and estimation theory.

0572. Electrophysiology (CHE 0572) (MES 0572). Cr. 3.

Prereq: EE 0381, 0558 or consent of instructor. Mathematical techniques to describe the electrical behavior of nerve and muscle. Natural electrical sources in the physiological system; propagation of energy to various parts of the system.

0577. Digital Signal Processing. Cr. 4.

Prereq: EE 0477. Comparison of digital and analog communication systems. Analysis of discrete signals and systems. Elements of digital communication systems. Selected topics in coding and decoding techniques. Signal processing and digital filtering.

0581. Electromagnetic Theory III. Cr. 4.

Prereq: EE 0481. The applications of Maxwell's equations to the solution of time varying problems. Field basis for circuit concepts, skin effect and circuit impedance. Analysis of plane waves, wave guides, simple resonators. Radiation.

0582. Theory of Optical Systems I. Cr. 4.

Prereq: EE 0481, MAT 0521. Derivation of geometrical optics from Maxwell's equations, polarization and the transport of energy, Hamilton's theory of optics, applications to antennas and wave propagations.

0583. Microwaves. Cr. 4.

Prereq: EE 0581. Velocity modulation and klystron theory, traveling wave tubes, cavity magnetrons, microwave networks, detection and measurements.

0585. Holography and Data Processing I. Cr. 4.

Prereq: EE 0381. Introduction to optical data processing information and the theory of wave front reconstruction.

0586. Solid-State Microwave Electronics. Cr. 3.

Prereq: EE 0351, 0481; senior standing. Applications of solid state devices in the microwave region. Tunnel diodes, avalanche diodes, and Gunn diodes.

0587. Introduction to Lasers. Cr. 4.

Prereq: PHY 0220. The fundamental principles of laser operation and a survey of the characteristics and applications of the major types of lasers currently in operation.

0588. Applications of Lasers. Cr. 4.

Prereq: EE 0587. Engineering applications of lasers. Design considerations for full systems and subsystems. Optical communication systems. Modulation. Beam steering. Pollution monitoring. Data storage and manipulation.

0595. Special Topics in Electrical Engineering I. Cr. 1-4.

Prereq: consent of instructor. Maximum of twelve credits in Special Topics may be elected in any one degree program. Topics to be announced in Schedule of Classes.

0614. Electromechanical System Dynamics. Cr. 4.

Prereq: EE 0514. Generalized analysis of electromechanical system dynamics employing the LaGrange equations. Analysis of performance and stability of rotating machines and power systems.

0616. Transients in Electric Power Systems. Cr. 4.

Prereq: EE 0514 or equiv. Transient electric system phenomena; lightning and switching surges, insulation coordination.

0631. Linear Systems. Cr. 4.

Prereq: EE 0447. Basic concepts of system theory; system functions and their properties; time-invariant linear systems; stability, controllability and observability; time-varying systems.

0644. Modern Control Theory I. Cr. 4.

Prereq: EE 0447. State-space methods of analysis; systems design by state variable methods.

0654. Bioelectronics II (MES 0654). (2,3). Cr. 3.

Prereq: EE 0567. Continuation of Electrical Engineering 0567.

0658. (MES 0658) Mathematical Modeling in Bioengineering (IE 0658). Cr. 3.

Prereq: EE 0558, MES 0341 or EE 0431. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration and current topics in bioengineering.

0666. Logical Design of Digital Computers I. Cr. 4.

Prereq: EE 0568. Logical design of digital computers; study of their structure and organization.

0668. Switching Circuits II. Cr. 4.

Prereq: EE 0568. Applications of sequential switching circuits for use in digital computer and digital communication circuits.

0669. Digital Laboratory II. (1,3). Cr. 2.

Prereq. or coreq: EE 0668. Laboratory experiments using digital integrated circuits as they pertain to sequential switching circuits.

0685. Holography and Data Processing II. Cr. 4.

Prereq: EE 0585. A continuation of Electrical Engineering 0585 in the study of coherent optical systems and special topics in current optical research as applied to holography in engineering.

Enrollment in the following courses is limited to graduate students.

0704. Mathematical Methods in Engineering I. Cr. 4.

Prereq: MAT 0523 or consent of instructor. Metric, linear vector, normed, and inner product spaces, mappings and functionals. Fixed-point and LaGrange-complement techniques. Engineering applications to system, control, signal, and field theory.

0705. Mathematical Methods in Engineering II. Cr. 4.

Prereq: EE 0704. Matrices and linear spaces, state variables, spectral theory of operators, Green's functions, eigenvalue problems, the variational principle and perturbation technique, with application to control theory, stability theory, and field theory.

0731. Network Synthesis I. Cr. 4.

Prereq: EE 0631. Introduction to realizability theory and scattering matrices. Review of positive real functions. Contemporary techniques for synthesis of prescribed driving-point and transfer characteristics.

0744. Modern Control Theory II. Cr. 4.

Prereq: EE 0644. Stability theory, variational calculus in optimum control, introduction to the principle of maximum and dynamic programming.

0746. Optimum Design of Large Scale Systems. Cr. 4.

Prereq: EE 0644. Optimum control of multivariable processes; of processes with inaccessible state variables; optimum estimation of state variables; optimum control for random-parameter processes.

0747. Control Systems III. Cr. 4.

Prereq: EE 0547. Optimization of stochastic systems. Continuous and stochastic sampled-data systems, real-time computer element applications, pulse-width modulation, systems of class interest.

0751. Advanced Solid State Electronics I. Cr. 4.

Prereq: EE 0557 or consent of instructor. Review of solid state theories. Electrical conductivity, relaxation times, and the Boltzmann equation. Mobility, Hall effect, contacts and application to negative differential conductivity devices such as the Gunn diode.

0754. Advanced Solid State Electronics II. Cr. 4.

Prereq: EE 0557 or consent of instructor. Current topics in solid state phenomena and devices such as heterojunctions, solar cells, light emitting and laser diodes, and amorphous semiconductors.

0766. Logical Design of Digital Computers II. Cr. 4.

Prereq: EE 0666 and MAT 0542. Continuation of Electrical Engineering 0666. The logical design of digital computers.

0773. Stochastic Processes and Noise I. Cr. 4.

Prereq: EE 0571 and 0605. Measure and probability spaces, random functions. Gaussian, Markov, and Poisson processes; conditional probability and expectation. Engineering applications to noise and optimal filtering theory.

0774. Stochastic Processes and Noise II. Cr. 4.

Prereq: EE 0773. Foundations of general decision and estimation theory. Engineering applications to modern signal detection and estimation.

0775. Information Theory. Cr. 4.

Prereq: EE 0773 or MAT 0580. Introduction to mathematical concepts and techniques of the transmission of information theory as applied to the statistical communication system.

0776. Signal Theory. Cr. 4.

Prereq: EE 0773. Introduction to the concepts and techniques of probability theory as applied to stochastic signal processes and noise.

0781. Antennas and Propagation. Cr. 4.

Prereq: EE 0581. Physical principles of radiation; directive radiation, antenna currents; impedance, reciprocity, and equivalence; general theory of linear antennas; linear antenna systems; special antennas.

0782. Theory of Optical Systems II. Cr. 4.

Prereq: EE 0582, MAT 0523. Diffraction optics and applications; antennas, optical data processing, radar cross sections.

0787. Quantum Theory of Lasers. Cr. 4.

Prereq: EE 0587 or consent of instructor. Review of quantum mechanics; Lamb theory of the laser, nonlinear optics, harmonic generation, stimulated scattering, nonlinear light propagation.

0790. Directed Study. Cr. 1-3 (Max. 9).

Prereq: consent of adviser and engineering graduate officer. Supervised study and instruction in an advanced topic in electrical engineering. An outline of proposed study and petition must be submitted to graduate committee in advance.

0795. Special Topics in Electrical Engineering II. Cr. 1-3.

Prereq: consent of instructor. Maximum of six credits in Special Topics may be elected in any one degree program. A consideration of special subject matter in electrical engineering. Topics to be announced in Schedule of Classes.

0796. Research. Cr. 1-4 (Max. 9).

Prereq: consent of graduate adviser and engineering graduate officer. Design, investigation, and experimental work on some phase of electrical engineering. Written report required.

0797. Seminar. Cr. 1.

Prereq: master's candidacy and consent of graduate adviser. Discussion of topics in electrical engineering.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0806. Mathematical Methods in Engineering III. Cr. 4.

Prereq: EE 0704. Topological, metric, Banach, and Hilbert spaces, functionals and generalized functions; contraction, monotone, and potential mappings; fixed-point and Hahn-Banach theorems. Engineering applications to optimization, nonlinear optimal control, system, signal, and field theory.

0831. Network Synthesis II. Cr. 4.

Prereq: EE 0731. Insertion-loss synthesis of filters. Two-port synthesis techniques. The approximation problem. Transmission-line synthesis techniques. Reciprocal and nonreciprocal n-ports.

0873. Modulation and Detection Theory. Cr. 4.

Prereq: EE 0776. Introduction to the concepts and techniques of signal processing and retrieval.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of graduate adviser.

0997. Doctoral Seminar. Cr. 2-6 (Max. 6).

Prereq: consent of doctoral adviser; coreq: EE 0999.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser. No more than ten credits may be elected before doctoral candidacy is obtained.

Industrial Engineering (I E)

0431. Operations Engineering I. (3,2). Cr. 4.

Prereq: IE 0450 and CSC 0280 or consent of instructor. Introduction to the operation function including operation and control of industrial and service systems. Work systems analysis, process analysis, operations analysis, job design and work measurement; flow charting of system operations and applications to computer simulation student projects.

0432. Operations Engineering II. Cr. 4.

Prereq: IE 0431 and IE 0554 or equiv. A continuation of Industrial Engineering 0431; the design of production planning and control systems. Forecasting, inventory control, aggregate planning, scheduling for different production systems, the planning and scheduling for large scale projects, and discussion of the design of computerized production control systems.

0450. Industrial Organization. Cr. 4.

Prereq: junior standing. Principles and types of organizations, departmental functions, plant location and layout, job study, production control, wage payments, motion and time study, quality control and an appreciation of the human problems in industry.

0453. Quantitative Aspects of Social Phenomena. Cr. 4.

Prereq: MAT 0519 and BE 0102 or equiv. Social phenomena examined using mathematical models. Exponential growth with saturation, coupled nonlinear equations, extreme values and traffic stability.

0480. Industrial Safety. Cr. 3.

Prereq: IE 0450 or MGT 0360. Application of industrial safety by the industrial engineer. Proper operating methods, machine guarding, environmental control, protective equipment, safety campaigns and accident costs and evaluation.

0490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: senior standing; consent of chairman. Supervised study and instruction in the field selected by the student. An outline of proposed study must be submitted to and approved by instructor and department chairman prior to election of course.

0496. Research. Cr. 1-9 (Max. 9).

Prereq: consent of chairman. Design investigation, or experimental work by the student in the selected field. An outline of proposed activity must be submitted to and approved by instructor and department chairman prior to election of course.

0497. Industrial Engineering Seminar. Cr. 2.

Prereq: senior standing. Reports and discussion of current topics of special interest.

0511. Introduction to Human Factors Engineering. Cr. 4.

Prereq: PSY 0198, IE 0554 or equiv. The behavioral characteristics of man which affect the performance of man-machine systems. Problems of psychological and physiological measurements. Sensory, information processing and motor abilities of man which affect system performance. Theoretical and methodological considerations.

0521. Systems Engineering. Cr. 4.

Prereq: IE 0557, 0587. Formulation and diagnosis of systems. Systems definition (diagrams, hierarchies and the law of requisite variety); systems analysis (testing, logic, and simulation); and systems treatment (implementation and improvement).

0533. Operations Engineering III. (3,2). Cr. 4.

Prereq: IE 0432. The design of facilities including plant location, layout, material handling and maintenance systems and the use of computer programs and digital simulation techniques. Analysis of control and operating problems including quality and financial control. Basic principles of management information systems and their applications to the operations function. Case studies and problems.

0536. Quality Control. Cr. 4.

Prereq: IE 0554 or equiv. Attribute sampling plans, variables

sampling plans, control charts, process capability analysis, chain sampling, quality costs and organization for a quality product.

0551. (MES 0551) Machine Design II. (2,3). Cr. 3.

Prereq: MES 0451. Feasibility, decision theory, optimization, legal problems (liability), reliability, styling, marketing, distribution, and cost as they are related to design.

0553. (MES 0558) Engineering Physiology (E E 0558). Cr. 3.

Prereq: senior standing or consent of instructor. Basic principles of human physiology from the engineering viewpoint. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by simple mathematical models when feasible.

0554. Foundations of Reliability and Quality Assurance. Cr. 4.

Prereq: BE 0102 or equiv. Data display and reduction, sampling statistics and their distributions. Testing of hypothesis, contingency, goodness of fit, control charts, tolerance limits, exponential and Weibull models for reliability and life testing.

0555. Engineering Data Analysis. Cr. 4.

Prereq: IE 0554. Continuation of Industrial Engineering 0554. Data analysis and summarization, distribution model selection, estimation of process characteristics, and testing for product or process improvements.

0556. Operations Research I. Cr. 4.

Prereq: MAT 0213; coreq: CSC 0280. Introduction to operations research and model formulation. Linear programming models, the primal problem, the simplex and revised simplex methods, the dual problem, sensitivity analysis and optimization in networks.

0557. Operations Research II. Cr. 4.

Prereq: IE 0554 or equiv. Decision theory considering evaluation of alternatives, value of information and decision trees; game theory considering zero-sum; two-person games, solution methods, and extensions; queuing theory as a means for studying stochastic service systems.

0558. Operations Research III. Cr. 4.

Prereq: IE 0556 or equiv. Introduction to dynamic programming, non-linear optimization, integer programming, inventory models, and Markov chains.

0559. (MES 0559) Bioinstrumentation (E E 0559). Cr. 3.

Prereq: EE 0300 and IE 0553. Engineering principles of physiological measurements. Signal conducting equipment, amplifiers, recorders and transducers. Recent advances in instrumentation.

0562. Experimental Design. Cr. 4

Prereq: IE 0554 or equiv. Principles of quantitative model construction for industrial and institutional processes; scale construction, validity testing, and multi-factor testing in man-machine systems; experimental designs.

0565. (P S 0563) Program Planning, Evaluation, and Budgeting (U P 0565) (S W 0870). Cr. 4 (Max. 12).

Prereq: consent of instructor. Theory and practice of modern planning, evaluation, and budgeting, with specific applications to urban programs in education, health, housing, and police services.

0587. Engineering Economy. Cr. 4.

Prereq: junior standing. Investment alternatives in industrial and governmental enterprises; application of present worth, equivalent

uniform cash or benefit flow, rate of return, and benefit-cost ratio techniques for deciding among alternatives; study of effects of depreciation methods, taxation, and financing on decision making; introduction to sensitivity analysis and expected value decision making.

0595. Special Topics in Industrial Engineering I. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. Special subject matter in industrial engineering. Topics to be announced in Schedule of Classes.

0613. Simulation Methods. Cr. 4.

Prereq: CSC 0280, IE 0554, or equiv. Introduction to simulation concepts. Large scale continuous systems such as industrial dynamics are modelled and simulated using CSMP or DYNAMO computer languages. Discreted systems are modelled and simulated using GPSS or SIMSCRIPT computer languages. Applications involving inventory systems and queuing systems are considered.

†0631. Foundations of Operations Engineering. Cr. 4.

Prereq: BE 0102. No graduate credit for majors. Fundamental theories and concepts in the design and analysis of a production system; production design, material flow charting, work measurement, plant layout, quality assurance, and inventory control. Applications to both production and urban systems.

0641. Decision Analysis. Cr. 4.

Prereq: IE 0557 or 0651 and 0554. A first course in optimal decision making based upon probabilistic, econometric, and behavioral models. Applications to engineering design problems.

†0651. Foundations of Operations Research. Cr. 4.

Prereq: MAT 0213; coreq: CSC 0280. No graduate credit for majors. Model formulation and computer aided solution methods for linear, nonlinear, and stochastic systems. The basic concepts of linear programming for efficient use and interpretation of computer codes. Game theory, queuing theory, and simulation with emphasis on computer solution. Various commercially available nonlinear and integer computer codes.

0653. Industrial Dynamics I. Cr. 3.

Prereq: senior and graduate engineering standing or consent of instructor. The study of information feedback characteristics of industrial activity to show how organizational policies and system delays interact to influence the process of the enterprise.

0658. (MES 0658) Mathematical Modeling in Bioengineering (E E 0658). Cr. 3.

Prereq: MES 0341, E E 0431 or IE 0553. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration, and current topics in bioengineering.

0661. Foundations of Optimization. Cr. 4.

Prereq: IE 0556 or 0651. Optimization theory; resume of topological properties of E^n ; functions of many variables; systems of linear equalities and inequalities; convex and concave functions; Lagrange multipliers and their interpretation, duality; linear and nonlinear programming; necessary conditions for optimality in mathematical programming; Kuhn-Tucker theory; methods of optimum search; gradient and steepest ascent.

0663. Introduction to Transportation Science (C E 0663). Cr. 4.

Prereq: IE 0557 or equiv. Theoretical developments in operations research for describing traffic flow for highway, railway, and advanced automated systems of ground transport.

0671. Design and Operation of Stochastic Service Systems. Cr. 4.

Prereq: IE 0554. Service systems such as highways, air terminals, telephone nets, supermarkets, banks, power plants. Operations research techniques to design, control and operate such systems.

0681. Engineering Administration I. Cr. 4.

Prereq: engineering degree. Engineering organization as a system. Organization analysis techniques. Organizational structures. Research and development, product design, industrial engineering supporting services.

0685. Management Information Systems Design. Cr. 4.

Prereq: CSC 0280 and IE 0432, or 0631. Hardware and software concepts, needs analysis, project planning and control, economic evaluation, operation problems in information system.

Enrollment in the following courses is limited to graduate students.

0700. Inventory Theory. Cr. 4.

Prereq: IE 0554, 0661. Cost considerations in inventory management, demand forecasting techniques, buffer stock determination, study of different inventory policies, lot size reorder point models, periodic review models, static and dynamic inventory models, steady state inventory models.

0712. Human Factors in Design. Cr. 3.

Prereq: IE 0511, 0562. Human factors in the design, evaluation, and maintenance of systems. Original research in human factors. Detailed theoretical and methodological consideration of signal detection theory, information theory, memory decision making, psychomotor performance, and performance under stress. Man as a system component is the organizing theme.

0725. Network Flows. Cr. 4.

Prereq: IE 0661. Introduction to graph theory; undirected graphs, directed graphs, distances on graphs, and matrix representation of graphs. Introduction to networks; shortest path methods, maximal flow, transportation, relationship to mathematical programming, multi-terminal flows, and multi-commodity flows.

0736. Advanced Topics in Quality Control. Cr. 4.

Prereq: IE 0536, 0555, 0661. Review of the theoretical aspects of quality control systems design. Research areas related to quality control systems design; theoretical basis, potential applications, and extensions.

0738. Theory of Scheduling. Cr. 4.

Prereq: IE 0558 or 0661. Framework for scheduling, job shop scheduling, network problems related to scheduling, dynamic sequencing problems, experimental studies in job shop scheduling. Assigned readings in scheduling literature.

0747. Cybernetics of Urban Systems I (S W 0871). Cr. 4.

Prereq: consent of instructor. Economic, institutional, ecological, political and physical subsystems of the urban area. How these subsystems interrelate and can be made more responsive to human needs.

0748. Cybernetics of Urban Systems II (S W 0872). Cr. 4.

Prereq: IE 0747. Multi-disciplinary structural analysis of urban systems through the methods and models of systems engineering political science, economic geography, and management science the issue of centralization and decentralization.

0749. Cybernetics of Urban Systems III (S W 0873). Cr. 4.

Prereq: IE 0748. Multi-disciplinary assessment of the roles of knowledge, social values, and power in the conscious transformation of urban areas.

0753. Industrial Dynamics II. (2,3). Cr. 3.

Prereq: IE 0653. A continuation of Industrial Engineering 0653 with emphasis of systems modeling.

0761. Mathematical Programming. Cr. 4.

Prereq: IE 0661 or consent of instructor. Convexity, theory of simplex method, degeneracy and convergence, revised and dual simplex, duality, parametric programming, complementary pivot theory, bounded variable and decomposition theory.

0762. Optimal Control Theory. Cr. 4.

Prereq: IE 0661. Basic definitions; geometric aspects of optimal processes; dynamic programming and principles of optimality; discrete optimal control theory and discrete maximum principle; continuous optimal control systems and Pontryagin's maximum principle; relationship to dynamic programming.

0763. Applied Dynamic Programming. Cr. 4.

Prereq: IE 0661. Use of applied dynamic programming to solve complex optimization problems in operations research and multi-staged sequential decision making processes, principle of optimality, computational aspects and sensitivity analysis, optimization under uncertainty and stochasticity.

0764. (C E 0764) Economic Analysis in Transportation Systems Planning. Cr. 4.

Prereq: ECO 0102 and consent of instructor. Application of engineering economy and price theory in optimization of transportation systems designs functioning primarily in an urban environment; congestion costs, externalities, primary and secondary costs and benefits, and peak period pricing; case studies.

0765. Field Studies in Modern Urban Programs. (2,4). Cr. 4.

Prereq: IE 0565. Must be elected immediately after Industrial Engineering 0565. Application of systems analysis, evaluation models, and social accounting to ongoing or completed urban programs in the Detroit area.

0767. Nonlinear Optimization Techniques. Cr. 4.

Prereq: IE 0661 and 0761. Use of nonlinear optimization and programming techniques to obtain optimal solutions of complex systems, Kuhn-Tucker theory and its applications; optimum seeking methods; gradient techniques; feasible direction algorithms, review and application of the current literature.

0782. Engineering Administration II. Cr. 4.

Prereq: IE 0681. Organization and operation of engineering, research, and related phases in relation to organization development; the functions of planning; assigning, directing, measuring, controlling. Case studies.

0783. Engineering Administration III. Cr. 4.

Prereq: IE 0554 and 0681. Management and control of engineering and manufacturing projects and systems. Allocation and balancing of manpower and facilities. PERT, PERT cost, CPM.

0784. Production Planning. Cr. 4.

Prereq: IE 0661. Advanced production planning and smoothing techniques. Use of recent operations research techniques in planning of production and inventory for large scale systems. Readings from current literature.

0786. Reliability Engineering. Cr. 4.

Prereq: IE 0554. Failure distribution, life testing and parameter estimation; series and parallel system models; reliability improvement, and cost optimization.

0787. Reliability in Engineering Design. Cr. 4.

Prereq: IE 0555. Failure analysis and probabilistic design methodology. Computation of functions of design random variables. Design reliability computations for various distributions. Reliability computations to consider correlated and stochastic variables. Design and reliability project. Design examples.

0788. Reliability Optimization. Cr. 4.

Prereq: IE 0661, 0786. Advanced topics in area of design and reliability optimization and trade-off analysis. Reliability allocation models. Reliability economics and cost trade-offs with respect to reliability, maintainability, performance characteristics and safety. Optimization techniques using special structure of design problems. Optimization and design project.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman and engineering graduate officer. Student selects some field of industrial engineering for advanced study and instruction. An outline approved by the instructor must be presented before registration in this course.

0795. Special Topics in Industrial Engineering II. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. Special subject matter in industrial engineering. Topics to be announced in Schedule of Classes.

0796. Research. Cr. 1-9 (Max. 9).

Prereq: consent of adviser and engineering graduate officer. Advanced design, investigation or experimental work. An outline approved by the instructor must be presented before registration in this course.

0797. Seminar. Cr. 2.

Prereq: consent of adviser. Current developments in research and practice in the field of industrial engineering and operations research.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0861. (C E 0861) Transportation Engineering Systems Analysis. Cr. 4.

Prereq: IE 0558. Techniques of systems engineering and operations research applied to the prediction of demand, development and evaluation of alternatives for transportation systems composed of various land, air and marine modes.

0897. Seminar. Cr. 1-4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Cr. 1-16.

Prereq: consent of chairman of departmental graduate committee. No more than ten hours may be elected before doctoral candidacy is obtained.

Mechanical Engineering Sciences (MES)

0210. Statics and Dynamics. Cr. 4.

Prereq: MAT 0212. Behavior of engineering components and systems involving force and motion. Forces and equilibrium. Frames and trusses. Center of mass and gravity, centroids, and moments of inertia. Kinematics of particles.

0230. Mechanics of Fluids and Solids. Cr. 4.

Prereq: MES 0210. Mass momentum, energy, force, and stress. Displacement and strain. Velocity, acceleration, rate of deformation. Differential and integral equations of motion. Constitutive equations for elastic solids and Newtonian fluids. Problems illustrating meaning of material constants.

0240. Statics. Cr. 4.

Prereq: MAT 0212 and PHY 0217. Fundamental principles of statics with application to structural and mechanical problems. Forces, moments and equilibrium, trusses and frames, distributed forces, friction.

0310. Solid Mechanics I. Cr. 4.

Prereq: MES 0230. Review of concepts of stress and strain. Relation of infinitesimal elasticity theory to engineering theories. Theory of torsion including shear flow theory. Theory of bending, symmetrical beams, unsymmetrical beams, deflections, statically indeterminate structures. Elementary theory of stability, buckling. Consideration of stress concentrations and plastic hinge analysis.

0320. Thermodynamics II. Cr. 4.

Prereq: B E 0220. Entropy and the Second Law. Thermodynamic properties and processes. Applications of thermodynamics to flow systems and cycles. Systems with chemical reactions. An introduction to irreversible thermodynamics. Macroscopic treatment of thermodynamic laws.

0330. Fluid Mechanics I. Cr. 4.

Prereq: MES 0230. Basic concepts and fundamental equations of fluid mechanics. Classification of branches of fluid mechanics. Hydrostatics. Integral forms of general basic equations. Dimensional analysis and similarity. Steady, incompressible fluid motions.

0340. Dynamics I. Cr. 4.

Prereq: MES 0210 or PHY 0217. Theory of particle motion. Dynamics of particle systems and plane rigid bodies. Equations of motion, impulse-momentum principles, conservation forces and work-energy principles.

0341. Vibrations I. Cr. 4.

Prereq: B E 0240 and MES 0340. Fundamentals of dynamic principles, energy relation and Rayleigh's principle. Undamped and damped free vibration of one degree of freedom. Forced vibration with harmonic excitation. Systems with two degrees of freedom. Introduction to phase plane analysis.

0350. Design of Mechanical Elements. (2,6). Cr. 4.

Prereq: MES 0310. Kinematic and dynamic analysis of basic machine elements and mechanisms. Development of graphical and analytical technique for solution. Computer modeling. Practice in design of machine elements to perform specified functions. Limitations imposed by manufacturing, cost, material properties. Example of analysis and synthesis of various machine elements. Methods for reducing complex elements to elementary forms.

0352. Systems Design and Synthesis I. (2,6). Cr. 4.

Prereq: MES students, MES 0350; ET students, MCT 0340. A

multi-disciplinary approach to the synthesis and analysis of simple physical systems. A critical review of previously designed sub-systems, such as an automobile suspension system, with recommendations for design improvements. Oral and written reports by students on outlines for a design project suitable for use in Mechanical Engineering Sciences 0450.

0392. Fundamentals of Engineering Experimentation. (2,2). Cr. 3.

Prereq: junior engineering or senior technology standing. The use of experiment and testing in engineering practice and research. Scaling and similitude. Planning of experiments. Characteristics and dynamics of common measuring instrumentation. Generalized system approach to instrumentation; impedance matching. Statistical analysis of data. Consistency checks and data redundancy.

0393. Experimental Problems in Mechanical Engineering Sciences. (2,4). Cr. 4.

Prereq: MES 0392. Experiments on mechanical engineering systems, chosen from several possibilities based on existing experimental facilities and faculty-student interests.

0395. Special Topics in Engineering Sciences. Cr. 3.

Prereq: consent of chairman. Special subject matter in engineering. Topics to be announced in Schedule of Classes.

0410. Solid Mechanics II. Cr. 4.

Prereq: MES 0310. Basic equations of classical infinitesimal elasticity. Plane stress, generalized plane stress, and plane strain problems for simply and multiply connected regions. Stress function and strain energy methods. St. Venant theory of torsion and bending. Minimum weight design. Emphasis on solving engineering problems.

0420. Heat Transfer. Cr. 4.

Prereq: B E 0220. Fundamental concepts and the basic modes of heat transfer. The general equation of heat conduction. Steady state heat conduction in one and more dimensions. Transient heat conduction. Heat transfer by radiation, Kirchoff's Law and the black body. Radiation between diffuse surfaces. Radiation from gases, vapors and flames. Introduction to heat convection — the concept of the heat transfer coefficient and Nusselt number.

0430. Fluid Mechanics II. Cr. 4.

Prereq: MES 0330. Incompressible irrotational and rotational flows. Velocity potential, sources, sinks, doublets, circulation, superposition, two-dimensional motion of perfect fluids past bodies. Viscous fluids, some exact solutions, hydrodynamic and thermal boundary layer approximation, Von Karmen integral method. Emphasis on modeling engineering flow problems.

0450. Systems Design and Synthesis II. (3,3). Cr. 4.

Prereq: MES 0352. One or more design projects undertaken by students in which elements and subsystems are synthesized into larger systems. Emphasis on the overall system approach in which decisions are justified by feasibility studies.

0490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: senior students only; consent of chairman. Supervised study and instruction in the field selected by the student. An outline of proposed study must be submitted to and approved by instructor and department chairman prior to election of course.

0492. Engineering Experimental Project. (0,12). Cr. 4.

Prereq: MES 0392. Student-faculty designed project which will attempt to couple engineering analysis with an experimental configuration. The general task will be chosen from a list of several possibilities based upon existing experimental facilities. This will

involve the design of the experiment, assembly and experience in use of instrumentation and definition of experimental goals.

0500. Engineering Analysis I. Cr. 4.

Prereq: MAT 0519 and senior standing. Cognate credit only. Applications of ordinary differential equations. Fourier series, Fourier integrals, Laplace transforms. The method of Frobenius, Bessel functions, Legendre functions. Orthogonality of characteristic functions and boundary value problems.

0501. Engineering Analysis II. Cr. 4.

Prereq: MAT 0519 and senior standing. Basic operations of complex numbers. Analytic functions and the Cauchy-Riemann conditions. Cauchy integral formula. Residue theorem. Conformal mapping and its applications.

0502. Engineering Analysis III. Cr. 4.

Prereq: MAT 0519 and senior standing. Applications of constraints and Lagrange multipliers. Calculus of variations. Characteristics and solutions of partial differential equations of mathematical physics. The method of separation of variables. Applications to the problems of engineering science.

0510. Introduction to Plates and Shells. Cr. 4.

Prereq: MES 0410. Symmetrical and unsymmetrical bending of circular plates of uniform and non-uniform thickness. Bending of rectangular plates with various boundary conditions. Membrane theory of cylindrical and axially symmetric shells. Application to pressure vessels.

0514. Applied Plasticity. Cr. 4.

Prereq: MES 0310. Introduction to the theory of plasticity. Yield criteria, plastic stress-strain laws. Applications to trusses, beams, frames, and plates.

0520. Thermodynamics and Combustion Phenomena. Cr. 4.

Prereq: MES 0320 or equiv. Laws of thermodynamics using the postulational approach. Thermodynamic analysis of multiphase systems, non-reactive mixtures, and reactive mixtures. Hydrocarbon fuels characteristics. Combustible mixture formation. Explosion in gases. Flame structure and propagation. Introduction to statistical thermodynamics.

0522. Statistical Mechanics and Kinetic Theory. Cr. 4.

Prereq: MES 0320. Introduction to the statistical mechanical approach to thermodynamics and transport phenomena. Review of concepts of probability and particle mechanics. Elementary kinetic theory. Molecular explanation of thermodynamics. Calculation of thermodynamic properties for ideal gases. Quantum statistics. Simple theories for properties of dense gases, liquids, and solids. Chemical equilibria.

0523. Plasma Dynamics. Cr. 4.

Prereq: MES 0340. Properties of natural and laboratory produced plasmas, orbits of charged particles in fields, collisions. Coulomb scattering and diffusion of particles, collective phenomena in cold and hot plasmas, wave motion and stability, derivation of M.H.D. equations, applications to power generation, space propulsion and astronomy.

0526. Heat and Mass Transfer. Cr. 4.

Prereq: MES 0420. Heat transfer in laminar flow, free and forced convection in various geometries. Turbulent flow and experimental results. Heat transfer with boiling. Condensation, heat transfer in high velocity flows and rarified gases.

0528. Heat Conduction. Cr. 4.

Prereq: MAT 0519, MES 0420. Heat transfer by conduction in the steady and unsteady states, including heat sources. Analytical, numerical, graphical, and analog methods of solution for steady and fluctuating boundary conditions.

0530. Hydrodynamics. Cr. 4.

Prereq: MES 0330. Applications of the theory of incompressible, inviscid fluids. Elements of Potential Theory. Flow past slender bodies, approximation techniques. Impulsive motions, principle of virtual mass. Water waves, general flows with free boundaries, jets.

0533. Compressible Flow. Cr. 4.

Prereq: MES 0330. One-dimensional isentropic flow. Normal and oblique shock waves. Generalized duct flow. Two-dimensional steady isentropic flow, method of characteristics. Unsteady one-dimensional flow.

0535. Atmospheric Fluid Dynamics. Cr. 4.

Prereq: MES 0330 or equiv. or consent of instructor. Theory of fluid dynamics, heat transfer and associated phenomena that pertain to the motion of air in the atmosphere and the weather.

0536. Introduction to Boundary Layers. Cr. 4.

Prereq: MES 0330. Application of Prandtl approximations to Navier-Stokes and energy equations. Laminar flow and turbulent boundary layers. Similarity transformations. Flat plate. Stagnation point. Boundary layer separation. Jets and wakes. Von Karman integral methods. Solution of selected problems.

0539. Lubrication. Cr. 4.

Prereq: MES 0350 and 0430. Comprehensive studies of the theory and principles of lubrication and their application to major types of bearings and machining operations.

0540. Dynamics II. Cr. 4.

Prereq: MES 0340. Kinematics and dynamics of rigid bodies in space. General theory of rotating coordinate frames; relative motion equations. Euler angles, angular momentum, kinetic energy, work-energy principles. Introduction to gyroscopes.

0541. Vibrations II. Cr. 4.

Prereq: MES 0341. Multi-degree of freedom systems and numerical methods. Systems with impulsive and arbitrary excitations. Introduction to vibration of continuous systems and stability criteria for linear systems.

0542. Introduction to Random Oscillations. Cr. 4.

Prereq: BE 0102 and MES 0541. Objectives of random vibration analysis, vibration records, frequency response and the mean of input and response functions. Spectral density and filters. Probability distribution and probability density.

0545. Vehicle Systems Analysis. Cr. 4.

Prereq: MES 0450. Design analysis of automotive vehicles, with particular consideration to systems: power train, steering, braking, suspension, structural, electrical. Overall performance and vehicle handling.

0546. Effects of Acceleration on Biological Systems. Cr. 4.

Prereq: MES 0340, or consent of instructor. Study of steady state, impact, and vibration of biological systems. Mechanical and physiological responses.

0550. Machine Design I. (3,3). Cr. 4.

Prereq: MES 0350. Design of elementary systems which will include analyzing and synthesizing such factors and components as

shafts, keys and couplings, bearings, gears, and flexible power elements. Short design projects are included in the above.

0551. Machine Design II (I E 0551). (3,3). Cr. 4.

Prereq: MES 0550. Feasibility, decision theory, optimization, legal problems (liability), reliability, styling, marketing, distribution, and cost as they are related to design.

0552. Machine Design III. (2,6). Cr. 5.

Prereq: MES 0551. Definite design problems which require analysis, the synthesizing of data and basic principles into complete projects and justification in terms of function, production cost, and saleability. Development of creative thinking and training in the use and selection of existing technical information.

0553. Mechanism Design. Cr. 4.

Prereq: MES 0350. Design of mechanisms to perform special functions: computer mechanisms, indexing mechanisms, non-standard gears, special cams, linkages.

0554. Fundamentals of Vehicle Design. Cr. 4.

Prereq: senior standing. Behavior of the vehicle and its various subsystems; outline of the parameters which control design consideration of the vehicle and its various subsystems.

0555. Controls I. (3,3). Cr. 4.

Prereq: E E 0300, MES 0330, 0500 or equiv. Theory and design of electromechanical controls. Control of pressure, flow, speed, position, torque, and power. Methods of setting up and solving system differential equations.

0556. Controls II. (3,3). Cr. 4.

Prereq: MES 0555. Sinusoidal analysis and stability techniques. An introduction to non-linear systems.

0557. System Dynamics. (3,2). Cr. 4.

Prereq: B E 0240. Continuation of Basic Engineering 0240.

0558. Engineering Physiology (E E 0558) (I E 0553). Cr. 3.

Prereq: senior standing or consent of instructor. The basic principles of human physiology from the engineering viewpoint. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by simple mathematical models when feasible.

0559. Biinstrumentation (E E 0559) (I E 0559). Cr. 3.

Prereq: E E 0300 and MES 0558. Engineering principles of physiological measurements. Signal conditioning equipment, amplifiers, recorders and transducers. Recent advances.

0560. Properties and Behavior of Fluids and Solids. Cr. 4.

Prereq: MES 0230 and MET 0130. Nominal and true stress-strain properties. Empirical elastic-plastic stress-strain relations which account for strain hardening. Real material properties such as yield, fracture, brittleness and ductility. Introduction to one-dimensional viscoelasticity, creep, and uniaxial fatigue.

0567. (E E 0567) Bioelectronics I. (2,3). Cr. 3.

Prereq: MES 0559 or consent of instructor. Investigation of an approved research project in the area of bioelectronics.

0570. Introduction to Continuum Mechanics I. Cr. 4.

Prereq: MAT 0521. Cartesian tensor analysis, integral theorems, invariants. Kinematics: material derivative, transport theorem, streamlines. Deformation, deformation rate and spin tensors. Vorticity, circulation and associated theorems. Balance equations, momentum and energy transfer. Constitutive equation postulates.

0571. Introduction to Continuum Mechanics II. Cr. 4.

Prereq: MES 0570. Constitutive equations for non-linear elastic solids and Stokesian fluids: invariance requirements, objectively equivalent motions, polynomial approximations. Continuum thermodynamics: energy, entropy, heat flux. Clausius-Duhem inequality, equations of state, heat conduction equations, consideration of barotropic perfect fluids and linear elasticity.

0572. (E E 0572) Electrophysiology (CHE 0572). Cr. 3.

Prereq: E E 0381, MES 0558 or consent of instructor. This course provides mathematical techniques to describe the electrical behavior of nerve and muscle. It also points out that the physiological system consists of natural electrical sources and that energy from these sources can propagate to various parts of the system.

0580. Combustion Engines. Cr. 4.

Prereq: MES 0320 or equiv. Thermodynamics and cycle analysis of spark ignition, compression ignition, and gas turbine engines. Combustion processes in actual systems, performance characteristics, combustion abnormalities. Analysis of intake, fuel and exhaust systems.

0581. Combustion and Emissions. Cr. 4.

Prereq: MES 0580 (for CHE students, senior standing or equiv.). Fundamentals of emission formation in combustion systems, wall quenching and imperfect combustion, unburned hydrocarbons, carbon monoxide, aldehydes, nitrogen oxides, species stratification in the combustion chamber, particulates. Effect of design parameters and engine operating variables on emission formation. Emission controls and instrumentation.

0582. Gas Turbine Power. Cr. 4.

Prereq: MES 0320 and 0420. The thermodynamic analysis of the gas turbine processes. Study of plant components. Applications to aircraft propulsion, stationary, mobile and marine power.

0583. Thermal Environmental Engineering. Cr. 4.

Prereq: MES 0320 and 0420. Concepts and techniques in refrigeration and air conditioning.

0584. Air Pollution Control. Cr. 4.

Prereq: MES 0320. A comprehensive study of the sources of air pollution, methods for evaluating the nature and magnitude of contamination, and the methods and processes for the prevention and abatement of air pollution.

0585. Nuclear Power. Cr. 4.

Prereq: MES 0320. 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.

0590. Advanced Laboratory Topics. (2,2). Cr. 3.

Prereq: MES 0392. Concepts of statistical experimental designs, randomization, blocking, confounding, factorial and fractional factorial designs. Experimental designs using response surfaces. Regression analysis-linear and multiple regression. Instrumentation design of instruments for transient physical phenomena.

0592. Photomechanics of Solids. (2,4). Cr. 4.

Prereq: MES 0310. Theory and application of modern and classical optical methods to measure deformations and stresses in two- and three-dimensional solids. Emphasis on classical photoelasticity including coatings, stress separation methods, three-dimensional analysis and compensation.

0593. Strain Gage and Mechanical Measurements of Deformation. (2,4). Cr. 4.

Prereq: MES 0310. Principles of the electric resistance strain gage in the measurement of strain. Piezoresistive sensors, particularly the coupling of the variables of strain, temperature and lattice orientation. Strain gage rosette analysis, brittle coatings, considerations of electrical conditioning, calibration and telemetry. Use of strain gages and strain gage systems (including transducers) in research and industrial applications.

0594. Aerospace Propulsion. Cr. 4.

Prereq: MES 0320. Review of mechanics and thermodynamics, thermodynamics of aircraft jet engines, performance of rocket vehicles; propellants and combustion; nuclear rockets and electrical rocket propulsion systems.

0596. Special Topics in Mechanical Engineering Sciences. Cr. 1-4.

Prereq: consent of chairman. Maximum of six credits in special topics may be elected in any one degree program. Topics to be announced in Schedule of Classes.

0654. (E E 0654) Bioelectronics II. (2,3). Cr. 3.

Prereq: MES 0567. Continuation of Mechanical Engineering Sciences 0567.

0658. Mathematical Modeling in Bioengineering (E E 0658) (I E 0658). Cr. 3.

Prereq: MES 0558, 0341 or E E 0431. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration, and current topics.

Enrollment in the following courses is limited to graduate students.

0710. Theory of Plates. Cr. 4.

Prereq: MES 0410 or consent of instructor. Symmetrical and unsymmetrical bending of circular plates. Rectangular plates with various boundary conditions. Plates on elastic foundations. Strain energy and finite difference methods. Circular and rectangular plates of variable thickness. Large-deflection theory.

0711. Theory of Elasticity I. Cr. 4.

Prereq: MES 0571. Boundary value problems of classical infinitesimal elasticity. St. Venant bending and torsion. Plane stress, generalized plane stress, plane strain, for simply and multiply connected sections. Kolosov complex potentials.

0713. Elastic Stability I. Cr. 4.

Prereq: MES 0540 and 0570 or consent of instructor. Static and dynamic methods for the stability of discrete systems; linear systems with circulatory, dissipative and gyroscopic forces. Buckling of elastic rods with various end conditions under dynamic loading.

0714. Theory of Plasticity I. Cr. 4.

Prereq: MES 0571 or consent of instructor. Introduction to the basic concepts of plasticity. Yield criteria of Tresca and Von Mises. Stress-strain relations for plastic deformation: Levy-Mises, Hencky and Prandtl-Ruess. Solution of elasto-plastic problems in torsion and bending, rotating cylinders and disks, thick-walled hollow spheres and cylinders and two-dimensional plastic flow problems.

0715. Thermal Stress Analysis I. Cr. 4.

Prereq: MES 0570. Field equations, kinematics, constitutive equations for three-dimensional linear theories of thermoelasticity and thermoviscoelasticity. Boundary value problems, solution techniques, applications of thermoelasticity.

0717. Viscoelasticity I. Cr. 4.

Prereq: MES 0570. Discussion of material behavior in applications involving polymers, plastics and structural materials at elevated temperatures; stress relaxation, creep, retardation times. The field equations, kinematics, constitutive equations for uniaxial loading—finite models, hereditary laws. Harmonic oscillations, complex modulus and compliance. Three-dimensional linear theory; properly invariant constitutive laws in terms of Stieltjes convolutions.

0721. States of Matter. Cr. 4

Prereq: MES 0522. Methods of calculation for properties and phenomena in liquids, including thermodynamic and statistical mechanical approaches as well as use of models. Thermodynamic, electromagnetic and transport properties of one-component liquids, suspensions, and multiphase systems.

0722. Statistical Mechanical Methods in Engineering. Cr. 4.

Prereq: MES 0520 or 0522. Methods of equilibrium and non-equilibrium statistical mechanics useful for the microscopic approach to engineering problems.

0723. Advanced Kinetic Theory of Plasmas. Cr. 4.

Prereq: MES 0522. Boltzmann and Fokker-Planck kinetic equations, collision cross sections. Theory of electrolytic solutions and equilibrium plasma. Debye screening, transport coefficients in neutral and ionized gases, Einstein and Onsager relations, Kramers-Kronig relations. Non-equilibrium phenomena electrical breakdown in neutral and partially ionized plasmas.

0724. Electromagnetic Propagation and Scattering in Plasmas. Cr. 4.

Prereq: consent of instructor. Maxwell's equations and Lorentz Theory of electrons. Propagation through homogeneous plasmas. Scattering from simple geometries. Propagation and scattering in random media. Application to turbulent atmospheres. Propagation in magnetized plasmas. The general scattering problem, S matrix. Eikonal solution and geometric optics. WKB approximation. First and second Born approximation. Distorted wave approximation. Introduction to nonlinear propagation. Electron distribution functions. Breakdown phenomena.

0725. Radiative Heat Transfer. Cr. 4.

Prereq: MES 0420. The fundamental laws of energy transfer by radiation. Statistical mechanics. Derivation of the black-body function. Radiative properties of real, specular, and diffuse surfaces. Radiative transfer through transparent media. The equation of transfer for absorbing and emitting media. Isothermal, variable temperature and radiative equilibrium conditions. Coupling of radiation, conduction and convection.

0726. Convective Heat Transfer. Cr. 4.

Prereq: MES 0420 and 0430. General equations of conservation of mass, momentum and energy. Prandtl's approximation and the boundary layer equations. Solutions for velocity and temperature distributions for external flows with and without pressure gradients. Solutions for ducted flows. Approximate integral methods for momentum and energy. High speed flow. Adiabatic wall temperature. Introduction to compressible boundary layers and turbulent flow.

0728. Mathematical Methods in Diffusion and Heat Conduction. Cr. 4.

Prereq: MES 0420. Steady state heat conduction in two and three dimensions. Solutions of Laplace and Poisson equations and the equation for unsteady diffusion by several approaches: potential theory, similarity solutions, separation of variables, Green's function, variational methods, Laplace transform and numerical meth-

ods. Diffusion phenomena: distribution function, equation of transfer, solution for isotropic scattering, numerical methods. Diffusion approximation.

0729. Advanced Combustion and Emissions I. Cr. 4.

Prereq: MES 0520 or consent of instructor. Flame propagation theories, structure of premixed hydrocarbon flames, mathematical formulations for flame propagation and emission formation in homogenous mixtures in engines.

0730. Theory of Incompressible Flow I. Cr. 4.

Prereq: MAT 0523 and MES 0430 or consent of instructor. Review of general equations for barotropic perfect fluids and of complex variable theory. Introduction to study of two-dimensional motion using conformal mapping—complex potential, velocity, stagnation points, speed; streamlines; circle theorem; flow past circular cylinder, airfoil theory.

0733. Compressible Flow I. Cr. 4.

Prereq: MES 0430 or consent of instructor. Restriction of general fluid conservation equations to non-viscous, adiabatic flow; one-dimensional isentropic flow; generalized one-dimensional flow; shock waves; two- and three-dimensional steady, subsonic flow with associated techniques.

0734. Introduction to Magnetohydrodynamics. Cr. 4.

Prereq: MES 0523 or consent of instructor. Concepts and description of plasma; interaction of fluids and electromagnetic fields; Ohm's Law for conducting fluids and gases, magnetohydrodynamic approximation. Alfvén waves, forward facing waves, magnetohydrodynamic flows over thin bodies in magnetic fields; boundary layers in magnetohydrodynamics.

0736. Viscous Flow and Boundary Layer Theory I. Cr. 4.

Prereq: MES 0570 or consent of instructor. Theory of similar solutions, Goldstein theorem, Falkner-Skan and Mangler equations, existence and uniqueness. Qualitative properties of boundary layer equations, Von Mises transformation, maximum principle for parabolic equations. Three-dimensional boundary layers.

0738. Hydrodynamic Stability and Transition to Turbulence I. Cr. 4.

Prereq: MES 0530. Equilibrium flow regimes; difference equations of mass, motion and energy; stability parameters; inviscid instability of shear flow; centrifugal flows and thermo-convective systems.

0740. Advanced Dynamics I. Cr. 4.

Prereq: MES 0540. Generalized coordinates, classification of dynamical systems with finite degrees of freedom. Lagrange's equations for rheonomic, non-holonomic systems. Ignorable coordinates, Jacobi's integral for conservative and natural systems. Applications to holonomic and non-holonomic systems. Dissipative systems, Hamilton's equations.

0741. Vibrations of Continuous Systems. Cr. 4.

Prereq: MES 0541. Introduction to integral transforms. Longitudinal, torsional, and transverse vibrations of rods; free and forced periodic and aperiodic vibrations. Transverse vibrations of continuous beams and frames. Transverse vibrations of thin plates. Approximate methods: iterative and difference methods, transfer matrices; Rayleigh-Ritz and Galerkin method.

0743. Dynamics of Machinery. Cr. 4.

Prereq: MES 0540. Dynamic-force analysis of plane-motion and space mechanisms. Balancing; cams; analysis, reduction, and isolation of vibration.

0748. Nonlinear Vibrations I. Cr. 4.

Prereq: MES 0541. Introduction to nonlinear oscillations. Topological methods of determination of the motion of a nonlinear system. Criteria of stability in the sense of Liapounoff. Study of singular points. Discussion of variational methods applied to a nonlinear system.

0750. Advanced Mechanisms. Cr. 4.

Prereq: MES 0550, MAT 0280 or equiv. Analysis and synthesis of space mechanisms, such as design of space mechanisms to follow a prescribed space curve.

0751. Optimum Design. Cr. 4.

Prereq: MES 0450 and MAT 0519. Methods of optimum design for mechanical elements and systems. Techniques for minimizing undesirable effects or maximizing desirable effects in a given design.

0755. Controls III. (3,3). Cr. 4.

Prereq: MES 0556. Nonlinear controls. Advanced study of control systems components.

0770. Advanced Continuum Mechanics. Cr. 4.

Prereq: MES 0571. Advanced topics in continuum mechanics. General curvilinear tensors; kinematics of fluids, solids, media with microstructure, non-simple media; constitutive equations for the above media; chemically reacting mixtures; selected solutions.

0771. Theory of Rods. Cr. 4.

Prereq: MES 0571 and 0770 or consent of instructor. Kinematics of a directed curve, strain measures and geometric interpretation, rate measures, anholonomic components. Energy balance and invariance under rigid body motions, balance of mass and momentum. Development of a complete dynamical theory of elastic directed curves. The special case of Cosserat curves. Reduction to the theory of Green and Laws and of Hay.

0772. Foundations of the Theory of Elastic Shells. Cr. 4.

Prereq: MES 0711 or consent of instructor. Geometry of a surface; kinematics of deformation and strain measures. The Kirchhoff Hypothesis. Derivation of stress measures and of the stress equations of equilibrium. Constitutive equations. General theorems.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman and engineering graduate officer. Student selects some field of engineering for advanced study and instruction.

0792. Advanced Methods of Experimental Stress Analysis. (1,3). Cr. 2.

Prereq: MES 0593. Detailed study; investigation of residual stress measurements by x-ray diffraction and other methods. Selection and limitations of methods, interpretation of results. Thermal stress and three-dimensional analysis.

0795. Special Topics in Mechanical Engineering Sciences I. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in engineering. Topics to be announced in Schedule of Classes.

0796. Research. Cr. 1-9 (Max. 9).

Prereq: consent of chairman and engineering graduate officer. A combined experimental and analytic study of a problem in a special field of engineering.

0811. Theory of Elasticity II. Cr. 4.

Prereq: MES 0570 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; Rivlin Ericksen tensors. Balance principles: mass, momentum, energy; entropy production inequality. Constitutive relations; Cauchy and Green elasticity, principles of objectivity and of material anisotropy. Thermodynamics of deformation and development of nonlinear non-isothermal theory of hyperelasticity.

0812. Theory of Elasticity III. Cr. 4.

Prereq: MES 0570 or consent of instructor. Classical linear elastostatics: theorems on existence and uniqueness; inequalities; stress functions of Finzi, Galerkin and Popkovich-Neuber and reduction to three harmonic functions; fundamental solutions of Kelvin, Boussinesq and Mindlin; integral representations of solutions; St. Venant's principle; three dimensional stress concentrations, the contact problem. Classical linear elastodynamics: Poisson and Lamé solutions, Sternberg's theorem; wave propagation; Love, Rayleigh and Lamb. Finite deformation, the method of Rivlin.

0813. Elastic Stability II. Cr. 4.

Prereq: MES 0713. Classical potential energy method for the stability of equilibrium configurations of elastic systems; reduction to a variational problem, Rayleigh-Ritz method. Dynamical stability theory for continuous media.

0814. Theory of Plasticity II. Cr. 4.

Prereq: MES 0714. Theory of work-hardening materials: models of hardening behavior; plastic dissipation and material stability; extremum principles. Anisotropic plasticity. Plastic wave propagation. Viscoplasticity.

0815. Thermal Stress Analysis II. Cr. 4.

Prereq: MES 0715. Boundary value problems, stress analysis, correspondence principle, solution techniques in thermoviscoelasticity. Materials with temperature dependent parameters, effects of material anisotropy and substructure.

0816. Theory of Shells. Cr. 4.

Prereq: MES 0772 or consent of instructor. Membrane theory of shells of revolution and cylindrical shells of arbitrary shape. Applications to pressure vessels and domes. General bending theory of cylindrical shells and applications. Symmetrical deformation of shells of revolution with detailed treatment of spherical, conical and toroidal shells. Method of asymptotic integration.

0817. Viscoelasticity II. Cr. 4.

Prereq: MES 0717 or consent of instructor. Integral constitutive equations, discontinuous stress and strain histories. Alternative formulations of boundary-value problems. Properties of viscoelastic states; initial response, correspondence principle. Integral theorems (work, energy, reciprocal relations), uniqueness, solution by stress functions. Dynamic loading, wave propagation.

0825. Advanced Radiative Heat Transfer in Gases. Cr. 4.

Prereq: MES 0522 and 0725. The equation of transfer for absorbing, emitting and scattering media. Optically thick and optically thin approximation. Local thermodynamic equilibrium. Coupled effects of conduction and convection. Homogeneous atmospheres and approximation techniques for inhomogeneous atmospheres. Non-equilibrium effects.

0826. Turbulent Flow and Heat Transfer. Cr. 4.

Prereq: MES 0726 or consent of instructor. The fundamentals of heat and momentum transfer in turbulent flow. Development of the heat and momentum transfer equations in turbulent flow. The

concept of eddy diffusivity. Analysis of heat transfer in turbulent flow using the Momentum-Heat Transfer Analogy. Phenomenological theories of turbulence. Methods of Prandtl, Von Karman, Martinelli, Lyon, Deissler; other recent developments in turbulent flow heat transfer.

0827. Hypersonic Gas Dynamics. Cr. 4.

Prereq: MES 0533. Review of the concepts of gas dynamics and shock waves. Slender body theory. One-dimensional unsteady flows. Similarity solutions. Explosions and implosions. Blast waves. Newtonian theory. Approximate techniques for blunt body flows and for supersonic flows. Viscous effects. Boundary layer-entropy layer interactions. Viscous and merged layer approximations. Rarefied flow. Slip and free molecular flow.

0828. High Temperature Gas Dynamics. Cr. 4.

Prereq: MES 0726 or consent of instructor. Thermodynamic and transport properties of high temperature gases. Flows with finite chemical and internal relaxation rates. Boundary layer equations including chemical reactions, radiative transfer and 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.

0829. Advanced Combustion and Emissions II. Cr. 4.

Prereq: MES 0729 or consent of instructor. Heterogeneous combustion theories, diffusion flames, droplet combustion, spray combustion, mechanisms of emission formation in compression ignition, stratified charge and gas turbine engines.

0830. Theory of Incompressible Flow II. Cr. 4.

Prereq: MES 0730. Applications of the theory of incompressible fluid using conformal mapping techniques. Development and use of important transformations and theorems, such as those of Kutta Joukowski and Schwarz and Christoffel. Three-dimensional flow, slender body theory.

0833. Compressible Flow II. Cr. 4.

Prereq: MES 0733 or consent of instructor. Two- and three-dimensional supersonic flow using the method of characteristics; linearized potential equations, cones in supersonic flow; acoustic approximation; bodies of revolution using sources and sinks for subsonic and supersonic flow.

0836. Viscous Flow and Boundary Layer Theory II. Cr. 4.

Prereq: MES 0736 or consent of instructor. The equations of motion for viscous compressible flow, similarity assumptions, solution techniques; subsonic, supersonic and hypersonic flow with viscous effects including effects of dissociation, heat and mass transfer and chemical reactions.

0838. Hydrodynamic Stability and Transition to Turbulence II. Cr. 4.

Prereq: MES 0738. Stability of viscous flows; linear and nonlinear theories; numerical and analytical solutions to Eigenvalue problems; Eigenvalue estimates and qualitative descriptions of the stability limit surface; experimental investigations.

0840. Advanced Dynamics II. Cr. 4.

Prereq: MES 0740. Variational principles for dynamical systems. Contact transformations, Poisson brackets, Hamilton's principal function, Hamilton-Jacobi equation, Jacobi's integral, separable systems. General dynamical theory.

0848. Nonlinear Vibrations II. Cr. 4.

Prereq: MES 0748. Poincaré's canonical transformation of equations; Van der Pol's method of solution; Duffing's equation of

criteria of stability by means of Mathieu and Hill's equation. Introduction to perturbation methods applied to nonlinear systems.

0895. Special Topics in Mechanical Engineering Sciences II. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of special topics credit in any one degree program. A consideration of special subject matter in engineering. Topics to be announced in Schedule of Classes.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0997. Doctoral Seminar. Cr. 2-6 (Max. 6).

Prereq: consent of doctoral adviser; coreq: MES 0999.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser. No more than ten hours may be elected before doctoral candidacy is obtained.

Metallurgical Engineering (MET)

Required Undergraduate Courses

A grade of C is the minimum acceptable for these required courses. Continuation in sequence courses after receipt of D may be authorized only by the department chairman.

0130. Science of Engineering Materials. Cr. 4.

Prereq: CHM 0107. Introduction to the behavior and properties of metallic, ceramic, polymeric and composite materials. The relationship between the internal arrangement of atoms in materials and their observed mechanical, thermal, electrical and chemical behavior.

0260. Physical Metallurgy I. Cr. 4.

Prereq: MET 0130; PHY 0218. The structure and properties of metallic materials, emphasizing phase diagrams, micro-structure, deformation, recrystallization, transformation and surface treatment.

0262. Structure and Properties of Metals Laboratory. (0,6). Cr. 2.

Prereq. or coreq: MET 0260. Experimental study of the phase relationship and properties of metals and alloys as determined by metallographic techniques.

0300. X-Ray Metallurgy. (3,4). Cr. 4.

Prereq: MET 0260. Introduction to X-ray crystallography, diffraction theory and its applications, the stereographic projections, pole figures, twinning, crystal orientation and line broadening. Introduction to reciprocal lattice in solution of crystallographic problems.

0330. Physical Metallurgy II. (3,4). Cr. 4.

Prereq: MET 0260 and CHE 0358. Principles of the physical metallurgy of iron and steel. Eutectoid and martensitic transformations in steel and factors governing hardenability.

0360. Physical Metallurgy III. (3,3). Cr. 4.

Prereq: MET 0330. A continuation of Metallurgical Engineering 0330, with emphasis on a quantitative theory of alloys, and basic mechanisms involved in phase transformations.

0380. Process Metallurgy. Cr. 4.

Prereq: CHE 0358. Fundamentals of heat and mass transfer as applied to the production, solidification and heat treatment of metals. Properties of liquid phases, solidification, kinetics and equilibria of metallurgical reactions, diffusion and surface phenomena.

0382. Metallurgical Operations Laboratory. (1,3). Cr. 2.

Prereq. or coreq: MET 0380. Laboratory investigations of some of the unit operations studies in Metallurgical Engineering 0380, and the analysis of these operations in metallurgical processes. Comprehensive technical reports.

0420. Fundamentals of Design. (2,2). Cr. 3.

Prereq: MET 0360 and 0380. Application of engineering and science background to the design of equipment and processes. Comprehensive problems deal with source of data, design principles and economics.

0426. Research: Organization. (1,3). Cr. 1.

Prereq: consent of chairman. Organization of a research project: literature survey, equipment specification and presentation of a written proposal for the laboratory investigation.

0430. Materials Aspect of Fabrication I. (4,1). Cr. 4.

Prereq: MET 0130. Detailed analysis of physical phenomena associated with joining and forming. Basic processes such as heat flow, phase transformations, surface reactions, and structural changes associated with welding, brazing, metal forming, and fabrication of composite materials. Emphasis is on basic physical and chemical processes associated with fabrication techniques.

0456. Research: Investigation. (0,12). Cr. 4.

Prereq: MET 0426. Laboratory investigation of an approved research project. Conferences and oral reports.

0486. Senior Seminar. (1,3). Cr. 2.

Prereq: MET 0456. Preparation of a comprehensive written report on the research project completed in Metallurgical Engineering 0456. Final oral report to the department staff.

0497. Seminar. Cr. 1.

Prereq: senior standing. Reports and discussions of current topics of special interest in metallurgical engineering.

Undergraduate Elective Courses

0440. Chemical Metallurgy. (3,1). Cr. 3.

Prereq: MET 0380. Some of the unit processes of metallurgy with emphasis on the physico-chemical principles underlying process and extractive metallurgy and correlation of theory with practice. Process design calculations and engineering reports. Gas phase reactions and reactions in solutions; interaction parameters.

0451. Engineering Design. (2,3). Cr. 3.

Prereq: MET 0420. Principles of material selection, process specification and study of material and process failures.

0490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman. Student selects some field of metallurgical engineering for advanced study and instruction.

0494. Engineering Experience Report. Cr. 1-5 (Max. 5).

Prereq: consent of department chairman and minimum of eight weeks of approved metallurgical engineering or allied profession. work in industry. Preparation of an engineering report covering its nature, scope, and professional responsibilities.

0509. Physical Ceramics (CHE 0509). Cr. 3.

Prereq: MET 0260 or equiv. Physical nature and behavior of vitreous and crystalline non-metals. Crystallography and atomic bonding relationships relative to mechanical, thermal, optic, magnetic and electrical properties. Phase equilibria and transformations, inter-actions in liquid-solid systems, surface properties and diffusional phenomena.

0515. (CHE 0515) Elements of Nuclear Engineering. (3,3). Cr. 4.

Open to upper division students only. Fundamentals of nuclear energy, including the processes for separation of isotopes from the viewpoint of metallurgical engineering. Materials for construction, design principles, and energy dissipation from reactors are discussed. Experimental work at Argonne National Laboratory.

0517. (CHE 0517) Nuclear Engineering Laboratory. (0,6). Cr. 2.

Prereq. or coreq: MET 0515. Basic phases of nuclear engineering including the determination of operating characteristics of nuclear reactors, hazards, and safety practices.

0555. Electrometallurgy. Cr. 3.

Prereq: consent of chairman. An intermediate-level study of the principles of the metallurgical processes of winning metals by electrolysis from fused salt baths and from water-containing baths. Design calculations and engineering reports.

0560. Composite Materials. Cr. 3.

Prereq: MET 0360 or consent of instructor. Principles and applications of high-strength composite materials, with particular emphasis on fibre-reinforced metals and plastics. Design of reinforced materials to replace conventional metals and alloys.

0561. Science of Materials. Cr. 3.

Prereq: PHY 0220 or equiv. Mathematics of physical models representing solid state phenomena. Wave propagation in a lattice, including elastic, light, and electron waves. Includes specific heats, optical phenomena, bond theory, dielectric properties, magnetism and ferro-electricity; classical and quantum statistics, and reciprocal lattice concepts.

0562. Electron Microscopy. (2,4). Cr. 3.

Prereq: MET 0360 or consent of instructor. Theory and practice of electron image formation, sample preparation, diffraction principles, and interpretation of effects.

0563. Cast Ferrous Alloys. (3,3). Cr. 4.

Prereq: MET 0330. Advanced study of the properties of ferrous castings and solidification mechanism.

0569. Engineering Aspects of Product Liability. Cr. 3.

Prereq: senior standing. Legal aspect of accident reconstruction on the basis of product liability to illustrate plaintiff and defendant approach to handling engineering subject matters.

0571. Case Studies in Material Science (CHE 0571). Cr. 3.

Prereq: MET 0569. Case studies involving product design, product evaluation, specifications, safety aspects, accident reconstruction.

0585. (CHE 0585) Vacuum Technology. Cr. 3.

Prereq: PHY 0220 or consent of instructor. Vacuum technique, flow of gases through tubes and orifices, operation of pumps and manometers, vacuum materials, vacuum systems.

0595. Special Topics in Metallurgical Engineering I. Cr. 1-4.

Prereq: consent of department chairman. Maximum of six 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.

0603. Failure of Metals. Cr. 3.

Prereq: MET 0486 or consent of chairman. Failure and defects of metals, their origin, causes and elimination.

0611. Materials Aspect of Fabrication II. Cr. 4.

Prereq: MET 0430. Advanced detailed analysis of physical phenomena associated with joining and forming. Basic processes such as heat flow, phase transformations, surface reactions, and structural changes associated with welding, brazing, metal forming, and fabrication of composite materials. Emphasis on basic physical and chemical processes associated with fabrication techniques.

0659. Phase Equilibria. Cr. 3.

Prereq: MET 0360 and senior standing. An analytical study of phase equilibria, with emphasis on phase rule, unary, binary, ternary and multi-component systems. Mechanism of solutions of isothermal and isopleths of systems.

0675. (CHE 0675) Heterogeneous Equilibria. Cr. 3.

Prereq: CHE 0358. An intermediate study of the phase diagrams of importance in chemical and metallurgical engineering and of the principles involved in such equilibria.

0685. Corrosion (CHE 0685). Cr. 2.

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.

Enrollment in the following courses is limited to graduate students. Students are advised to elect the following "core" courses in the graduate curriculum in Metallurgical Engineering: MET 0710, 0728, and 0850.

0710. Phase Transformations I. Cr. 4.

Prereq: MET 0360. An advanced treatment of phase transformations, based on thermodynamics, kinetics and crystallography. Nucleation, basic mechanisms of transformations, and applications of statistical mechanics.

0717. Physical Metallurgy of Tool Steels. Cr. 3.

Prereq: MET 0360. Manufacture, physical and mechanical testing, principles of heat treating, properties and selection, alloying elements as related to physical metallurgy of tool steels.

0728. Metallurgical Engineering Thermodynamics: Principles. Cr. 3.

Prereq: CHE 0358. An advanced study of the principles of thermodynamics with emphasis on those having ultimate application to reactions in metal producing processes and to the physical equilibria of alloys.

0758. Metallurgical Engineering Thermodynamics: Applications. Cr. 3.

Prereq: MET 0728. An advanced study of the applications of thermodynamic principles to metallurgical processes and products.

0760. Phase Transformations II. Cr. 4.

Prereq: MET 0710. A continuation of Metallurgical Engineering 0710, with emphasis on pearlite and martensite reactions.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman and graduate officer. Library investi-

gation of an approved project in metallurgical engineering. Independent study, conferences with supervisor and preparation of a comprehensive report.

0795. Special Topics in Metallurgical Engineering II. Cr. 1-4.

Prereq: consent of chairman. Maximum of six credits in special topics may be elected in any one degree program. A consideration of special subject matter in metallurgical engineering. Topics to be announced in Schedule of Classes.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0809. Advanced Ceramics (CHE 0809). Cr. 3.

Prereq: MET 0509. Advanced and theoretical topics in non-metallic materials. Topics in sintering and pressing, sintering in the presence of a liquid phase, structure of ceramics.

0815. (CHE 0815) Advanced Nuclear Engineering. Cr. 3.

Prereq: CHE 0515 or consent of chairman. Design, theory, and operation of reactors from the standpoint of chemical and metallurgical engineering. Design based on requirements for heat removal, burn-up, and materials. Fermi Age Model and Two-Group Theory with modifications for reflectors and control rods. Transient operation and instrumentation.

0821. Diffraction Theory in Material Science. (2,3). Cr. 3.

Prereq: MET 0300 and 0360. Advanced diffraction methods in materials science. Principles generally applicable to both x-ray and electron diffraction.

0831. Interaction of Radiation and Matter (CHE 0831). Cr. 3.

Prereq: MAT 0521 and PHY 0686 or MET 0821, or consent of instructor. Basic aspects of interaction of various radiations with matter. Nature of radiation and its propagation. Applications include reactor shielding, nuclear cross sections.

0835. Advanced Chemical Metallurgy. Cr. 3.

Prereq: MET 0758. Principles of thermodynamics and physical chemistry applied to heterogeneous systems. Computer control of operating systems.

0837. Principles of Steel Making. Cr. 3.

Prereq: MET 0440, 0758. Advanced study of the application of the principles of chemical metallurgy and of thermodynamics to the blast furnace and the refining furnace processes for iron production and steel making.

0845. Nuclear Engineering Materials. Cr. 3.

Prereq: MET 0300 and 0330 or consent of chairman. Integration of reactor design and materials. Reactor materials from the standpoint of basic structure or metallurgical micro-structure. Service problems and future requirements.

0847. Extractive Metallurgy. Cr. 3.

Prereq: MET 0440. Advanced study of the application of the principles of chemical metallurgy and of thermodynamics to the processes for production of metals.

0850. Mechanical Metallurgy. Cr. 3.

Prereq: MET 0360. An analysis of elastic and plastic characteristics of single crystals and polycrystals with particular emphasis on structure.

0880. Modern Physical Metallurgy. Cr. 3.

Prereq: consent of chairman. An advanced study of the theories

of the metallic state and of solid state reactions in alloy systems. Problems and reports.

0889. Metallurgical Process Laboratory. (0,9). Cr. 3.

Prereq: MET 0486 and consent of chairman. An advanced course of group laboratory investigations of pilot plant scale metallurgical processes. Literature surveys, process design, assembly and operation of process to obtain operating data, yields, costs, and materials of construction. Periodic progress and final comprehensive engineering report of entire project.

0896. Research. Cr. 1-9 (Min. 4, Max. 9).

Prereq: consent of chairman and 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.

0897. Seminar. Cr. 2.

Prereq: consent of chairman.

0899. Master's Thesis Research and Direction. Cr. 1-6 (12 required).

Prereq: consent of adviser.

0997. Doctoral Seminar. Cr. 2-6 (Max. 6).

Prereq: consent of doctoral adviser; coreq: MET 0999.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of chairman of departmental graduate committee. No more than ten credits may be elected before doctoral candidacy is obtained.

DIVISION OF ENGINEERING TECHNOLOGY

The evolution of our civilization has always been closely associated with technology and science. Now, and in the future, this association will become even more important.

New knowledge has inspired advances in technology resulting in new career opportunities. Far reaching developments have been made in communications and instrumentation technology. Highly sophisticated machine tools and manufacturing processes have come into being and new energy sources and man-made materials have been developed. Additionally, computer applications have revolutionized the techniques of industrial manufacturing and management.

This on-going expansion of scientific and engineering knowledge has changed the make-up of the engineering team and increased the demand for engineering technologists.

The engineering technologist, in cooperation with the engineer, organizes the men, materials, and equipment to design, construct, operate, maintain, and manage technical engineering projects. He or she should have a commitment to that technological progress which will create a better life for everyone.

ENGINEERING TECHNOLOGY PROGRAM

The program is under the direction of the College of Engineering and leads to a Bachelor's Degree in Engineering Technology (BET). Major specialties are:

- Civil Engineering Technology (C E T)
- Electrical/Electronic Engineering Technology (E E T)
- Manufacturing/Industrial Engineering Technology (M I T)
- Mechanical Engineering Technology (M C T)

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.

ADMISSION

The requirement for admission to the Engineering Technology Program will, in general, be an Associate Degree in an engineering-related technology area.

There are both day and evening programs; an *Application for Undergraduate Admission* form is required.

For application forms, apply to:

Wayne State University
Office of Admissions
Detroit, Michigan 48202
Telephone: 577-3569

GRADUATION REQUIREMENTS

A minimum total of 180 credits is required for the Bachelor of Engineering Technology degree. Approximately half of this total should be earned prior to admission to Wayne State University. University policy requires that at least forty-five credits toward the baccalaureate be earned at Wayne State.

At graduation, the University requires a minimum 2.0 (C) honor point average in the total residence credit. Additionally, the College requires a minimum 2.0 (C) honor point average in the total work taken in the area of specialization.

The credits listed for courses in the following Engineering Technology Programs are University values. For similar courses transferred from other accredited schools, the acceptable credits may be slightly above or below the University value.

For additional information regarding the Engineering Technology Program, contact Professor Robert B. Thornhill, College of Engineering, Wayne State University, Detroit, Michigan 48202; telephone (313) 577-0800.

CIVIL ENGINEERING TECHNOLOGY

Students with an Associate Degree in a branch of technology related to civil technology from a community college may be admitted to the bachelor's degree program in Civil Engineering Technology.

Students entering this program normally would have an Associate Degree or its equivalent in one of the following or related technical areas:

- | | |
|----------------------------|-----------------------|
| Architecture | Drafting |
| Architectural Construction | Environmental Control |
| Building Construction | Mechanical Design |
| Civil Technology | Surveying |
| Construction | Urban Technology |

Upon completion of this curriculum, the student is awarded the degree of Bachelor of Engineering Technology (Civil).

This program in Civil Engineering Technology offers the graduate substantial marketable competence by providing depth and breadth in technical science and technical specialties as well as related non-technical areas. At the same time, the program is broadly based to equip the student to meet changing technological and societal demands. Immediate usefulness and productivity — a result of academic experience in the application of engineering fundamentals, management techniques, cost analysis and human behavior fundamentals — is a distinguishing characteristic of the engineering technology graduate.

The civil engineering technologist works in close support of engineers and architects translating conceptual ideas into working systems. He is involved in applied design, building, highway and mass transportation, and environmental system construction as well as technical sales. He provides super-

visory direction for technicians and craftsmen who are implementing these ideas.

For additional information regarding the Civil Engineering Technology Program, contact:

Professor Lloyd T. Cheney
 Division of Engineering Technology
 College of Engineering
 Wayne State University
 Detroit, Michigan 48202
 Telephone: 577-0800

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	<i>credits</i>
English Electives	8
Economics 0101	4
Psychology 0198	4
Psychology 0350	4
Political Science 0101	4
Speech 0200	4
Electives	12
	<hr/> 40

BASIC SCIENCE AND MATHEMATICS

Chemistry 0102	4
Computer Science 0285	4
Mathematics 0180	5
Physics 0213	4
Physics 0214	4
Engg. Technology 0340	4
Engg. Technology 0342	4
Engg. Technology 0344	4
Science and Mathematics Electives	4
	<hr/> 37

TECHNICAL SCIENCES AND SPECIALTY

Engineering Graphics	8
Engg. Technology 0300	3
Engg. Technology 0305	3
Engg. Technology 0310	4
Engg. Technology 0320	4
Engg. Technology 0330	3
Civil Engg. 0307	4
Civil Engg. 0308	4
Civil Engg. 0421	4
Civil Engg. 0436	4
Civil Engg. Technology 0309	4
Civil Engg. Technology 0310	4
Civil Engg. Technology 0311	4
Civil Engg. Technology 0312	4
Civil Engg. Technology 0313	4
Civil Engg. Technology 0314	4
Civil Engg. Technology 0315	4
Civil Engg. Technology 0316	4

Civil Engg. Technology 0400	4
Civil Engg. Technology 0440	3
Civil Engg. Technology 0480	3
Engg. Technology 0387	4
¹ Electives	17
	<hr/> 104
Total minimum quarter credits for the degree	180

Sample Program: The sample program shown assumes students have an Associate Degree in Civil Technology from a community college with earned credits of approximately forty to forty-five credits in the specialty area, eight credits in college English, eight credits in physics, five credits in mathematics, four credits in chemistry, eight credits in graphics, four credits in American government, and four credits of electives in communications, humanities, and social science.²

Third Year

<i>Seventh Quarter</i>	<i>credits</i>
Civil Engg. Technology 0309	4
Computer Science 0285	4
Engg. Technology 0330	3
Engg. Technology 0342	4
	<hr/> 15

Eighth Quarter

Civil Engg. Technology 0311	4
Economics 0101	4
Engg. Technology 0340	4
Engg. Technology 0344	4
	<hr/> 16

Ninth Quarter

Civil Engg. Technology 0310	4
Civil Engg. Technology 0312	4
Civil Engg. Technology 0400	4
Speech 0200	4
	<hr/> 16

Fourth Year

Tenth Quarter

Civil Engineering 0421	3
Civil Engg. Technology 0313	4
Civil Engg. Technology 0314	4
Psychology 0198	4
	<hr/> 15

Eleventh Quarter

Civil Engineering 0436	4
Civil Engg. Technology 0440	3
Engg. Technology 0387	4
Psychology 0350	4
	<hr/> 15

¹ For most students these electives would be Associate Degree transfer credits with the preponderance in the individual's specialty area.

² Actual programs will vary dependent upon the specific courses taken by the student in the Associate Degree curriculum.

Twelfth Quarter

Civil Engg. Technology 0316 .. Project Management	4
Civil Engg. Technology 0480 .. Engineering Law	3
Electives	6
	13

ELECTRICAL/ELECTRONIC ENGINEERING TECHNOLOGY

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 offered to extend the practical and applied base of the Associate Degree program by means of more theoretical electrical and broad engineering 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).

Graduates of this program will be involved in a career field of far reaching challenges as well as rewarding opportunities — working with engineers, engineering technicians, craftsmen, and other skilled personnel in production engineering and management, engineering design and development, operations engineering, systems engineering, and technical sales.

For additional information regarding the Electrical/Electronic Engineering Technology Program, contact:

Professor Howard Hess
 Division of Engineering Technology
 College of Engineering
 Wayne State University
 Detroit, Michigan 48202
 Telephone: 577-0800

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	<i>credits</i>
English Electives	8
Political Science 0101	4
Psychology 0198	4
Psychology 0350	4
Speech 0200	4
Electives	12
	36

BASIC SCIENCE AND MATHEMATICS

Chemistry 0102	General Chemistry I	4
Computer Science 0285	Introduction to Digital Computing	4
Engg. Technology 0340	(MAT 0340) Applied Statistics	4
Engg. Technology 0342	(MAT 0342) Applied Calculus I	4
Engg. Technology 0344	(MAT 0344) Applied Calculus II	4
Mathematics 0180	Elementary Functions	5
Physics 0213	General Physics	4
Physics 0215	General Physics	4
Science and Mathematics Electives		3
		36

TECHNICAL SCIENCES, TECHNICAL SPECIALTY, AND ELECTIVES

Engg. Technology 0114	Engineering Graphics	3
Engg. Technology 0300	Statics	3
Engg. Technology 0305	Dynamics	3
Elect./Electronic Engg. Tech. 0333	Resistive Networks	4
Elect./Electronic Engg. Tech. 0335	Alternating-Current Network Analysis	4
Elect./Electronic Engg. Tech. 0336	Electrical Instrumentation	2
Elect./Electronic Engg. Tech. 0337	Advanced Network Analysis	4
Elect./Electronic Engg. Tech. 0383	Introduction to Electromagnetic Design	4
Elect./Electronic Engg. Tech. 0408	Design of Electrical Elements	4
Electrical Engg. 0351	Electronic Circuits I	4
Electrical Engg. 0352	Electronics Laboratory I	2
Engg. Technology 0387	Engineering Economic Analysis	4
Mechanical Engg. Tech. 0311	Thermodynamics I	4
Mechanical Engg. Tech. 0321	Heat Transfer	3
¹ Technical Specialty Electives		10-12
² Electives		48-50
		108
Total minimum quarter credits for the degree		180

Sample Program: For students with an Associate Degree in electrical or electronics technology from a community college with transfer credits which include approximately eight credits in college English, eight credits in physics, four credits in American government, three credits in engineering graphics, and four credits of elective in communications, socio-humanities, and courses in introductory network analysis and electronics.³

¹ These electives would be selected with permission of an adviser and could be chosen from a technology area other than electrical if it was deemed appropriate. Suggested interest areas in electrical technology for which sequential courses could be selected are computer technology, control systems, electronics, and electric power.

² For most students these electives would be Associate Degree transfer credits with the preponderance in the individual's specialty area.

³ Actual programs will probably vary from this sample depending on the courses taken by the student in the Associate Degree curriculum.

Third Year

<i>Seventh Quarter</i>		<i>credits</i>
Chemistry 0102	General Chemistry I	4
Mathematics 0180	Elementary Functions	5
Psychology 0198	Introductory Psychology	4
Speech 0200	Effective Speech	4
		17

<i>Eighth Quarter</i>		
Engg. Technology 0300	Statics	3
Engg. Technology 0340	(MAT 0340) Applied Calculus	4
Engg. Technology 0342	(MAT 0342) Applied Calculus I	4
Psychology 0350	Industrial and Personnel Psychology	4
		15

<i>Ninth Quarter</i>		
Elect./Electronic Engg. Technology 0383	Introduction to Electromagnetic Design	4
Engg. Technology 0305	Dynamics	3
Engg. Technology 0344	(MAT 0344) Applied Calculus II	4
Mechanical Engg. Tech. 0311	Thermodynamics I	4
		15

Fourth Year

<i>Tenth Quarter</i>		
Communication Socio-Humanities Elective		4
Computer Science 0285	Introduction to Digital Computing	4
Elect./Electronic Engg. Technology 0337	Advanced Network Analysis	4
Technical Specialty Elective		4
		16

<i>Eleventh Quarter</i>		
Communication Socio-Humanities Elective		4
Engg. Technology 0387	Engineering Economic Analysis	4
Mechanical Engg. Tech. 0321	Heat Transfer	3
Technical Specialty Elective		4
		15

<i>Twelfth Quarter</i>		
Elect./Electronic Engg. Technology 0408	Design of Electrical Elements	4
Mathematics or Basic Science Elective		3
Technical Specialty Electives		9
		16

MECHANICAL ENGINEERING TECHNOLOGY

The upper division program in Mechanical Engineering Technology is intended primarily to provide the graduate with marketable competence by providing depth and breadth in technical science and technical specialties as well as in non-technical related areas.

Students entering the program would normally have an Associate Degree or its equivalent in one of the following or related technical areas:

Aerospace Technology	Fluid Power
Automotive Technology	Mechanical Design
Climate Control	Mechanical Technology
Drafting	Powerplant

Upon completion of this curriculum, the student is awarded the degree of Bachelor of Engineering Technology (Mechanical).

Graduates of this curriculum will enter a field of challenging work with engineers, engineering technicians, craftsmen, and other skilled personnel in the design of many different types of machines, their instrumentation and control, and in the control of man-and-machine environments.

For additional information regarding the Mechanical Engineering Technology Program contact:

Professor John Wright
Division of Engineering Technology
College of Engineering
Wayne State University
Detroit, Michigan 48202
Telephone: 577-0800

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	<i>credits</i>	
English Electives	8	
Political Science 0101	Introduction to American Government	4
Psychology 0198	Introductory Psychology	4
Psychology 0350	Industrial and Personnel Psychology	4
Speech 0200	Effective Speech	4
Electives	12	
		36

BASIC SCIENCE AND MATHEMATICS

Chemistry 0102	General Chemistry I	4
Computer Science 0285	Introduction to Digital Computing	4
Engg. Technology 0340	(MAT 0340) Applied Statistics	4
Engg. Technology 0342	(MAT 0342) Applied Calculus I	4
Engg. Technology 0344	(MAT 0344) Applied Calculus II	4
Mathematics 0180	Elementary Functions	5
Physics 0213	General Physics	4
Physics 0214	General Physics	4
Science and Mathematics Electives		3
		36

TECHNICAL SCIENCES, TECHNICAL SPECIALTY, AND ELECTIVES

Engg. Technology 0114	Engineering Graphics	3
Engg. Technology 0300	Statics	3
Engg. Technology 0305	Dynamics	3
Engg. Technology 0310	Mechanics of Materials	4

Engg. Technology 0320	Properties of Materials	4
Elect./Electronic Engg. Technology 0331	Introduction to Electrical Technology	4
Elect./Electronic Engg. Technology 0336	Electrical Instrumentation	2
Engg. Technology 0387	Engineering Economic Analysis	4
Industrial Engg. 0450	Industrial Organization	4
Manufacturing/Industrial Engg. Technology 0351	Manufacturing Processes	4
Mechanical Engg. Tech. 0311	Thermodynamics I	4
Mechanical Engg. Tech. 0312	Thermodynamics II	4
Mechanical Engg. Tech. 0340	Design of Machine Elements	4
Mechanical Engg. Tech. 0360	Fluid Systems	4
¹ Technical Specialty Electives		6-8
² Electives		49-51
		108
Total minimum credits for the degree		180

Sample Program: For students with an Associate Degree in mechanical technology from a community college with transfer credits which include approximately thirty to forty credits in a specialty area, eight credits in college English, twelve credits in physics, four credits in chemistry, three credits in engineering graphics, four credits in American government and four credits of elective in communications or socio-humanities.³

Third Year

<i>Seventh Quarter</i>		<i>credits</i>
Engg. Technology 0320	Properties of Materials	4
Mathematics 0180	Elementary Functions	5
Psychology 0198	Introductory Psychology	4
Speech 0200	Effective Speech	4
		17

Eighth Quarter

Engg. Technology 0300	Statics	3
Engg. Technology 0340	(MAT 0340) Applied Statistics	4
Engg. Technology 0342	(MAT 0342) Applied Calculus I	4
Socio-Humanistic Elective		4
		15

Ninth Quarter

Engg. Technology 0305	Dynamics	3
Engg. Technology 0344	(MAT 0344) Applied Calculus II	4
Mechanical Engg. Tech. 0311	Thermodynamics I	4
Psychology 0350	Survey of Industrial and Personnel Psychology	4
		15

¹ These electives will be selected with permission of an adviser and can be chosen from a technology area other than mechanical if it is deemed appropriate. Suggested interest areas in mechanical technology for which sequential courses can be selected are design, emissions, experimental and thermal power.

² These electives will be Associate Degree transfer credit for most students with the preponderance in the individual's specialty area.

³ Actual programs will probably vary from this sample depending on the courses taken by the student in the Associate Degree curriculum.

Fourth Year

Tenth Quarter

Computer Science 0285	Introduction to Digital Computing	4
Elect./Electronic Engg. Technology 0331	Introduction to Electrical Technology	4
Engg. Technology 0310	Mechanics of Materials	4
Mechanical Engg. Tech. 0312	Thermodynamics II	4
		16

Eleventh Quarter

Elect./Electronic Engg. Technology 0336	Electrical Instrumentation	2
Manufacturing/Industrial Engg. Technology 0351	Manufacturing Processes	4
Mechanical Engg. Tech. 0340	Design of Machine Elements	4
Socio-Humanistic Elective		4
Technical Specialty Elective		3
		17

Twelfth Quarter

Engg. Technology 0387	Engineering Economic Analysis	4
Industrial Engg. 0450	Industrial Organization	4
Mechanical Engg. Tech. 0360	Fluid Systems	4
Technical Specialty Elective		4
		16

MANUFACTURING/INDUSTRIAL ENGINEERING TECHNOLOGY

The Manufacturing or Industrial Engineering Technologist performs a vital function in following through engineering decisions and in solving problems. This program is offered to extend the practical and applied base of the Associate Degree in technical science and technical specialties as well as in non-technical related areas.

Since manufacturing is the largest and most diversified industry in America, the Manufacturing/Industrial Engineering Technology program at Wayne State University is designed with maximum flexibility to give the student unique opportunities for individual development and growth through the liberal use of elective areas.

The program prepares the student with the knowledge and skills to successfully lead and supervise personnel engaged in manufacturing and industrial operations, and to help in the development of new products and processes.

Students entering the program would normally have an Associate Degree or its equivalent in one of the following or related technical areas:

Drafting	Metals Machining
Industrial Technology	Metrology and Calibration
Manufacturing	Numerical Control
Machine Tools	Welding
Metallurgy	

Upon completion of this curriculum, the student is awarded the degree of Bachelor of Engineering Technology (Manufacturing/Industrial).

For additional information regarding the Manufacturing/Industrial Engineering Technology Program contact:

Professor Karl Anderson
 Division of Engineering Technology
 College of Engineering
 Wayne State University
 Detroit, Michigan 48202
 Telephone: 577-0800

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	<i>credits</i>
English Electives	8
Political Science 0101 Introduction to American Government	4
Psychology 0198 Introductory Psychology	4
Psychology 0350 Industrial and Personnel Psychology	4
Speech 0200 Effective Speech	4
Electives	12
	36

BASIC SCIENCE AND MATHEMATICS

Chemistry 0102 General Chemistry I	4
Computer Science 0285 Introduction to Digital Computing	4
Engg. Technology 0340 (MAT 0340) Applied Statistics	4
Engg. Technology 0342 (MAT 0342) Applied Calculus I	4
Mathematics 0180 Elementary Functions	5
Physics 0213, 0214, 0215 General Physics	12
Science and Mathematics Electives	3
	36

TECHNICAL SCIENCES, TECHNICAL SPECIALTY, AND ELECTIVES

Engg. Technology 0114 Engineering Graphics	3
Engg. Technology 0115 Descriptive Geometry	3
Engg. Technology 0300 Statics	3
Engg. Technology 0305 Dynamics	3
Engg. Technology 0310 Mechanics of Materials	4
Engg. Technology 0320 Properties of Materials	4
Engg. Technology 0330 The Technological Professions	3
Engg. Technology 0387 Engineering Economic Analysis	4
Industrial Engg. 0450 Industrial Organization	4
Mechanical Engg. Tech. 0360 Fluid Systems	4
Manufacturing/Industrial Engg. Technology 0191 Welding, Casting and Forming Processes	4
Manufacturing/Industrial Engg. Technology 0291 Machine Tool Operations	4
Physics 0570 Basic Electronics	4
Electives	28
¹ Technical Specialty Electives	32
	107
Total minimum quarter credits for the degree	180

TECHNICAL SPECIALTY GROUPS

Course numbers and topics covered:

- A. Specialized Equipment Capabilities and Operations:
 Machining, Welding, Casting, Forming, Forging, Gears, Finishing, Automation
- B. Process Selection and Design:
 MIT 0360 — Process Planning and Design
 MIT 0420 or I E 0432 — Production Control
- C. Machine and Tool Design:
 MIT 0450 — Tool and Die Design
 MCT 0340 — Design of Machine Elements
 Specialized Industrial Drafting and Graphics
 Hydraulics and Pneumatics
- D. Inspection and Quality Assurance:
 MIT 0340 — Metrology
 MIT 0440 — Quality Control
 MET 0300 — Nondestructive Testing
- E. Metallurgy and Materials:
 MET 0260, 0262 — Physical Metallurgy
 MET 0380, 0382 — Welding and Casting Metallurgy
 Plastics
 Corrosion
- F. Numerical Control Systems and Programming:
 MIT 0370 — Numerical Control
 MIT 0375, 0475 — APT Programming
 B E 0314, 0414 — Computer Graphics
 Computer Process Control
- G. Industrial Operations:
 MIT 0330 or I E 0431 — Methods Analysis and Work Measurement
 MIT 0320, 0325 — Plant Layout and Materials Handling
 I E 0480 — Industrial Safety
- H. Management and Supervision:
 ACC 0310, 0311 — Accounting and Cost Control
 MGT 0360, 0461 — Management Systems
 MKT 0342 — Marketing
 Labor Relations
 Contracts and Legal Aspects
 MGT 0362, MKT 0590 — Behavioral Science
- I. Research and Guided Studies:
 MIT 0491 — Manufacturing Research
 MIT 0490 — Guided Studies

Sample Program: For students with an Associate Degree in Manufacturing Technology or a related area from a community college with transfer credits which include approximately eight credits in college English, four credits in American government, six credits in engineering graphics, four credits in physics, four credits of elective in communications or socio-humanities and thirty-five to forty credits in a specialty area.²

¹ It is suggested that at least one course be taken from each of the following Technical Specialty Groups (A through I), described on this page.

² Actual programs will probably vary from this sample depending on the courses taken by the student in the Associate Degree curriculum.

COURSES OF INSTRUCTION¹

DIVISION OF ENGINEERING TECHNOLOGY

Engineering Technology (E T)

Third Year

<i>Seventh Quarter</i>		<i>credits</i>
Chemistry 0102	General Chemistry I	4
Engg. Technology 0320	Properties of Materials	4
Industrial Engg. 0450	Industrial Organization	4
Mathematics 0180	Elementary Functions	5
		17

Eighth Quarter

Engg. Technology 0340	(MAT 0340) Applied Statistics	4
Engg. Technology 0387	Engineering Economic Analysis	4
Mechanical Engg. Tech. 0360	Fluid Systems	4
Physics 0213	General Physics	4
		16

Ninth Quarter

Computer Science 0285	Introduction to Digital Computing	4
Engg. Technology 0300	Statics	3
Engg. Technology 0342	(MAT 0342) Applied Calculus I	4
Physics 0214	General Physics	4
		15

Fourth Year

Tenth Quarter

Engg. Technology 0305	Dynamics	3
Engg. Technology 0310	Mechanics of Materials	4
Engg. Technology 0330	The Technological Professions	3
Physics 0215	General Physics	4
		14

Eleventh Quarter

Physics 0570	Basic Electronics	4
Psychology 0198	Introductory Psychology	4
Speech 0200	Effective Speech	4
Technical Specialty Group Elective		4
		16

Twelfth Quarter

Communications or Socio-Humanities Elective		4
Psychology 0350	Survey of Industrial and Personnel Psychology	4
Technical Specialty Group Electives		8-10
		16-18

0114. Engineering Graphics. (2,3). Cr. 3.

The theory and application of projection drawing as it applies to engineering; emphasis on both two- and three-dimensional visualization.

0115. Descriptive Geometry. (2,3). Cr. 3.

Prereq: E T 0114. The theory of orthographic projection and its application to two- and three-dimensional spatial problems.

0300. Statics. Cr. 3.

Prereq: PHY 0213 and MAT 0180. The algebraic and graphic techniques for determining the forces acting upon a body or structural component under static load.

0305. Dynamics. Cr. 3.

Prereq: E T 0300. Kinematics. Kinetics of translation and rotation of a rigid body. Relative motion. Use of equations of plane motion. Application of impulse and momentum principles. Work and efficiency.

0310. Mechanics of Materials. Cr. 4.

Prereq: E T 0300. The elastic behavior of load-bearing materials. Tension-compression, shear, combined stress, bending, torsion and columns.

0320. Properties of Materials. Cr. 4.

Prereq: CHM 0102. Application and characteristics, both physical and chemical, of metallic and non-metallic materials used in industry. The primary processes involved in producing these materials.

0330. The Technological Professions. (2,3). Cr. 3.

Prereq: MAT 0180. A study of the engineer and technologist and their relationship to society with emphasis on design as the unifying characteristic of engineering and technology.

0340. (MAT 0340) Applied Statistics. Cr. 4.

No degree credit in College of Liberal Arts. Prereq: college algebra. The application of probability concepts and statistical theory in the use of engineering data.

0342. (MAT 0342) Applied Calculus I. Cr. 4.

No degree credit in College of Liberal Arts. Prereq: MAT 0180. The application of differential and integral calculus and analytical geometry to engineering problem situations.

0344. (MAT 0344) Applied Calculus II. Cr. 4.

No degree credit in College of Liberal Arts. Prereq: E T 0342. A continuation of Engineering Technology 0342 including the application of ordinary differential equations to engineering problem situations.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0387. Engineering Economic Analysis. Cr. 4.

Prereq: MAT 0180. Principles and techniques for analyzing projects involving the acquisition and replacement of capital equipment.

0490. Guided Study. Cr. 1-9 (Max. 9).

Prereq: junior standing; consent of specialty coordinator. Supervised study and instruction in field selected by student.

Civil Engineering Technology (CET)

0309. Transportation Engineering. Cr. 4.

Survey of transportation. Planning, design, construction and maintenance of highways, airports, railroads, water transport facilities, and pipelines.

0310. Highway Engineering. (3,3). Cr. 4.

Prereq: C E 0308. Highway planning, location, drainage, construction and maintenance of highways, streets, and pavement. Design problems in location, grades, cross-sections, earthwork distribution.

0311. Structures I. Cr. 4.

Prereq: E T 0310. Utilization of basic principles of applied mechanics in stress analysis of simple structures. Bridge and roof trusses. Movable loads, critical loadings by influence lines. Deflection of structures.

0312. Structures II. Cr. 4.

Prereq: CET 0311. Introduction to analysis of statically indeterminate structures. Approximate and exact analysis of framed structures.

0313. Design of Structural Elements. (3,3). Cr. 4.

Prereq: CET 0311. Design computations covering the simple structural elements and portions of integral structures of timber and steel.

0314. Soil Mechanics and Foundations. (3,3). Cr. 4.

Prereq: E T 0310. Identification and classification of soils, stresses in soils, bearing capacity and settlement, testing procedures. Seepage, drainage, and frost action.

0315. Construction Techniques and Equipment. Cr. 4.

Contractor's office and field organization: responsibilities, functions. Review of construction equipment, capabilities, productivity measurements, maintenance programs. Safety practices; laws and codes; accident and insurance procedures.

0316. Project Management. (3,3). Cr. 4.

Prereq: CET 0315. Use of critical path method for supervision to plan, schedule and control projects; manual and computer systems. Control of time and costs.

0400. Fluid Mechanics. (3,3). Cr. 4.

Prereq: E T 0305. Statics and dynamics of fluids. The flow of fluids in pipes, around submerged objects and in open channels. Hydraulic machinery. Fluid instrumentation.

0440. Environmental Engineering. Cr. 3.

Prereq: C E 0421. Unit operations and processes of water quality improvement. Collection, processing, and disposal of solid wastes. Introduction to air pollution.

0480. Engineering Law. Cr. 3.

Prereq: senior standing. The relation of the engineer to society, national codes of practice, ethics, law of contracts, agency, negotiable instruments and sales.

0490. Guided Study. Cr. 1-9 (Max. 9).

Prereq: junior standing; consent of specialty coordinator. Supervised study and instruction in field selected by student.

Electrical/Electronic Engineering Technology (EET)

0331. Introduction to Electrical Technology. Cr. 4.

For non-electrical majors. Prereq: E T 0342 and PHY 0214. Kirchhoff's laws, D.C. and A.C. circuit analysis, impedance, phasors, power and R.M.S. values, mutual coupling. Power transformer, D.C. and A.C. generators and motors, motor controls.

0333. Resistive Network. Cr. 4.

Prereq. or coreq: MAT 0180. Kirchhoff's laws, mesh and nodal analysis, network reduction, voltage and current division, Thevenin's theorem, time-varying sources.

0335. Alternating-Current Network Analysis. Cr. 4.

Prereq: E T 0342 and EET 0333. Sinusoidal sources, phasors, impedance, power, reactive power, power factor, magnetically-coupled circuits, frequency response and resonance, three-phase systems, total response in first-order systems.

0336. Electrical Instrumentation. (1,3). Cr. 2.

Prereq: EET 0331 or 0335. Theory and use of electrical instruments, power supplies, bridges, potentiometers, oscilloscopes, electronic instruments, and transducers.

0337. Advanced Network Analysis. Cr. 4.

Prereq: E T 0344 and EET 0335. Complex frequency, transfer functions, $Z(s)$, pole-zero configurations, natural and forced response, the Laplace transform, transform networks and techniques, Fourier-series analysis, two-port networks.

0383. Introduction to Electromagnetic Design. (3,2). Cr. 4.

Prereq: E T 0342. Forces and energy in static electric and magnetic fields, design analysis of resistors, capacitors, inductors, and tractive magnets.

0408. Design of Electrical Elements. (2,4). Cr. 4.

Prereq: EET 0383 and MCT 0321. Guided-design project. Thermal and economic factors in electrical design. Design of electrical elements and simple systems. Computer-aided design of electrical/electronic networks.

0421. Electrical Machinery. Cr. 4.

Prereq: EET 0335 and 0383. Physical and operating characteristics of D.C. and A.C. generators and motors, transformers, equivalent circuits, motor controls.

0422. Electrical Machinery Laboratory. Cr. 1.

Prereq: EET 0421. Input-output characteristics of small motors, generators, and transformers.

0441. Electric Power Systems. Cr. 4.

Prereq: EET 0421. Electric power plants, three-phase systems, gen-

eration, transmission and distribution of electric power, power system apparatus, efficiency and economics of power system operation.

0443. Power System Analysis. Cr. 4.

Prereq: EET 0441. Per-unit notation, power network analysis and reduction, load-flow analysis, short-circuit currents, symmetrical components.

0445. Power System Design. Cr. 4.

Prereq: EET 0441. Electrical specifications and estimating, power circuit layout, power factor correction, voltage drop calculations, motor power supply and control, elements of illumination.

0447. Control System Analysis. Cr. 4.

Prereq: EET 0337. Modelling of system components, linearization of characteristics, frequency response, feedback analysis, stability analysis and criteria.

0448. Control Systems Laboratory. (0,6). Cr. 2.

Prereq: EET 0447. Measurement and calculation of control-system parameters, experimental analysis of open-loop and closed-loop systems, compensation.

0453. Electronic Communication Circuits. Cr. 4.

Prereq: E E 0351. Multistage amplifiers, power, efficiency, distortion, input and output impedance, frequency response, feedback, oscillators, modulators, demodulators, integrated circuits.

0454. Electronic Communications Laboratory. (1,3). Cr. 2.

Prereq: EET 0453. Frequency, power, and performance characteristics of electronic communications circuits.

0456. Pulse Circuits. Cr. 4.

Prereq: E E 0351. Analysis of electronic circuits for wave-shaping, timing, triggering, and counting.

0468. Switching and Logic Circuits. Cr. 4.

Prereq: senior standing. Logic network components and systems, switching circuit analysis, computer circuits, automation controls.

0485. Transmission of Energy and Signals. Cr. 4.

Prereq: EET 0337 and 0383. Transmission equations, line parameters, terminations, distortion, reflection, and loading. Full-frequency analysis of transmission-line performance.

0490. Guided Study. Cr. 1-9 (Max. 9).

Prereq: junior standing; consent of specialty coordinator. Supervised study and instruction in field selected by student.

Manufacturing/Industrial Engineering Technology (MIT)

0191. Welding, Casting and Forming Processes. (2,5). Cr. 4.

Fundamental theory and unit operations covering gas and arc welding, cutting, brazing, spot welding, forging, heat treatment, electroplating, forming and casting techniques on ferrous and non-ferrous materials. Includes substantial laboratory experience.

0291. Machine Tool Operations. (2,6). Cr. 4.

Fundamental theory of machining and operation of machine tools. Unit operations on lathes, mills, shapers, grinders, related service equipment, and assembly of processed parts. Includes substantial laboratory experience.

0320. Plant Layout. Cr. 4.

Prereq: MIT 0355 or equiv. Arrangement of stock, machines, layout of aisles, and use of space and material handling for highest efficiency and safety of production.

0325. Materials Handling. Cr. 4.

Materials handling elements, the unit load, packaging, bulk handling, the economics of materials handling, improving existing handling methods, justification for handling equipment, and special techniques.

0330. Methods and Work Measurement. Cr. 4.

Principles of motion economy, use of process charts, micro-motion analysis, workplace design, time study, standard data and work sampling.

0340. Metrology. (2,2). Cr. 3.

Prereq: MIT 0291 or equiv. Science of measurements. Standards and specification, inspection principles. Measuring and gaging equipment. Nonprecision, precision and comparative measurements and their applications to dimensional quality control. Typical inspection problems. Laboratory work in the use of inspection equipment.

0351. Manufacturing Analysis. Cr. 4.

Comprehensive analytical and theoretical study of manufacturing processes including casting, forming, machining, welding, and fabrication of common materials. Laboratory demonstrations.

0360. Parts Processing. Cr. 4.

Prereq: MIT 0351 or equiv. Processing function. Method of manufacturing analysis. Manufacturing sequence, mechanization. Selection of tooling and equipment. Planning the process of manufacture.

0370. Numerical Control. Cr. 4.

Prereq: MIT 0351 or equiv. Fundamental concepts of numerical control as it relates to the machine, the control, the part program. Positioning systems; contouring systems; NC machine design; servo-mechanisms; axis and motion nomenclature; set-up procedures; tape coding and formatting; coordinate coding; feedrate and spindle speed coding; ancillary control system features.

0375. APT Programming I. Cr. 3.

Prereq: MIT 0351 or equiv. Concepts of APT. Geometry statements motion and start-up techniques, computer capabilities, special considerations, post processor interfacing.

0420. Production Control. Cr. 4.

Prereq: MIT 0351 or equiv. Practices and techniques of production planning and control, the master production schedule, establishment of part requirements, scheduling, requisitioning, inventory control, material expediting and follow-up. Material control systems.

0440. Quality Control. Cr. 4.

Prereq: MIT 0340. Application of probability theory, statistics, and control theory to problems associated with design, specifications, and manufacturing of products.

0450. Theory of Metal Cutting. Cr. 2.

Prereq: MIT 0291 or equiv. Tool life, chip formation, cutting forces, stresses. Mechanics of shear zone. Friction and surface finish measurements. Economics of machining. Strain gage dynamometers. Experiments in energy conversion in metal cutting and machinability.

0475. APT Programming II. Cr. 3.

Prereq: MIT 0375. APT system capability; advanced techniques available to the part programmer. APT innovations: multiple intersection capabilities, two surface start-up techniques, looping, copy and macro techniques, multi-axis programming, and pocket routines.

0490. Guided Study. Cr. 1-9 (Max. 9).

Supervised study and instruction in the field selected by the student.

0491. Research Methods in Materials and Processes. Cr. 4.

Prereq: senior standing. Procedures and limitations of research. Equipment used for gathering and computing data. Individual research project to be originated by the student.

Mechanical Engineering Technology (MCT)

0311. Thermodynamics I. Cr. 4.

Prereq: PHY 0213 and E T 0342. A study of the first and second laws of thermodynamics with applications to gas and vapor processes and an introduction to cycles.

0312. Thermodynamics II. Cr. 4.

Prereq: MCT 0311. Power and refrigeration cycles, gas and vapor mixtures, nozzle and blade passage flow, and combustion.

0321. Heat Transfer. Cr. 3.

Prereq: MCT 0311. A study of the basic modes of heat transfer and their applications. Steady state conduction in one and two dimensions and transient conduction. Numerical and graphical methods.

0340. Design of Machine Elements. Cr. 4.

Prereq: E T 0305, 0310, and 0320. Fundamental concepts involved in the correct design of the separate elements which compose the machine; application of properties and mechanics of materials modified by practical considerations.

0341. Applied Kinematics. Cr. 3.

Prereq. or coreq: MCT 0340. Velocity and acceleration determination of moving parts in machine elements and mechanisms using graphical and analytical techniques. Cam, gear and gear train design and analysis.

0360. Fluid Systems. Cr. 4.

Prereq: MCT 0311. Properties of hydraulic fluids, fundamentals of fluid flow, dimensional analysis and similitude, and flow measurement techniques. Analysis of hydrostatic equipment, hydrokinetic equipment, and systems.

0480. Combustion Engines. Cr. 3.

Prereq: MCT 0312. Thermodynamics and cycle analysis of spark ignition, compression ignition, and gas turbine engines. Combustion processes in actual systems, performance characteristics, combustion abnormalities. Analysis of intake, fuel and exhaust systems.

0481. Combustion and Emissions. Cr. 4.

Prereq: MCT 0480. Fundamentals of emission formation in combustion systems, wall quenching and imperfect combustion, unburned hydrocarbons, carbon monoxide, aldehydes, nitrogen oxides, species stratification in the combustion chamber, particulates. Effect of design parameters and engine operating variables on emission formation. Emission control.

0482. Gas Turbine Power. Cr. 4.

Prereq: MCT 0312 and 0321. The thermodynamic analysis of the gas turbine processes. Study of plant components. Applications to aircraft propulsion, stationary, mobile and marine power.

0483. Thermal Environmental Engineering. Cr. 4.

Prereq: MCT 0312. Concepts and techniques in refrigeration and air conditioning.

0484. Air Pollution Control. Cr. 4.

Prereq: MCT 0312. The sources of air pollution, methods for evaluating the nature and magnitude of contamination, and the methods and processes for the prevention and abatement of air pollution.

0485. Nuclear Power. Cr. 4.

Prereq: MCT 0311 and senior standing. Introduction to nuclear engineering including a study of nuclear fission and the chain reaction; nuclear reactor principles, operation and materials; and reactor concepts, heat removal, and power cycles.

0490. Directed Study. Cr. 1-8 (Max. 8).

Prereq: senior standing; consent of advisor. Supervised study and instruction in the field selected by the student.

Law School



Law School Calendar

Fall Term 1974

Registration

First year evening students Thursday, August 15

First year day students Friday, August 23

All other students and
graduate law students Monday, Wednesday, and
Thursday, August 26, 28, 29

Classes begin

First year evening Monday, August 19

First year day Monday, August 26

All others Tuesday, September 3

Thanksgiving recess Thursday, November 28 -
Sunday, December 1

Classes end Wednesday, December 4

Review and reading period and

Registration for winter term Thursday, December 5 -
Monday, December 9

Examination period Tuesday, December 10 -
Saturday, December 21

Commencement Tuesday, December 10

Fall term ends Tuesday, December 31

Winter Term 1975

Winter term begins Wednesday, January 1

Final registration for winter term Thursday, Friday,
January 2, 3

Classes begin Monday, January 6

Spring recess Sunday, March 2 - Sunday, March 9

Classes resume Monday, March 10

Classes end Saturday, April 12

Review and reading period Sunday, April 13 -
Sunday, April 20

Examination period Monday, April 21 -
Saturday, May 3

Grading, consultation and final

faculty meetings Sunday, May 4 - Saturday, May 31

Academic year ends Saturday, May 31

Commencement Tuesday, June 24

*Summer Term 1975**

Registration Monday, May 5 - Friday, May 23

Classes begin Tuesday, May 27

Examination period Wednesday - Saturday, July 16 - 19

Summer Term ends Saturday, July 19

* The dates given are tentative.

THE SCHOOL

PHILOSOPHY

The chief goal of study at Wayne State University Law School is professional: to prepare the student to represent clients and to deal effectively with the problems he or she will encounter in the practice of law. At the same time, the school seeks to develop and sharpen the student's appreciation of a lawyer's responsibility, both to clients and the public, as well as to develop a constructively critical sense of the processes and the substance of the law. Finally, a major effort is now underway to make certain that students are challenged to relate law and legal institutions to the main social problems of today and tomorrow so that they will not only get a sound grounding in the law but also instruction that is relevant to the realities of life in contemporary society. To this end, the urban area that surrounds Wayne State University is an integral part of the School and provides a means by which the many vital social problems of the day may be understood and solved.

HISTORY

In cooperation with the Board of Education of the City of Detroit, in 1927 a group of public-spirited lawyers established a law school as part of the higher education system known as the Colleges of the City of Detroit. Subsequently these colleges were designated as Wayne University. In 1956 the University became Wayne State University, part of the higher education program of the State of Michigan.

ACCREDITATION

The Law School is a member of the Association of American Law Schools and is accredited by the Michigan State Board of Law Examiners, by the University of the State of New York, and by the American Bar Association.

THE LAW CENTER

The School is located at the north end of the University campus. The new buildings, dedicated in 1966, provide both the architectural and functional facilities essential to a modern law school.

One building has five large classrooms with terraced seats to provide maximum auditory-visual relationships of students to each other and the instructor. The floors are carpeted for comfort and excellent acoustics, and overhead projectors and other equipment for use of films and tapes are available in each room. This building also has lounges for the students.

The library building is connected to the classroom building by an arcade. It contains the Arthur Neef Law Library; seminar rooms; a large court room; offices for the faculty, administration, and the Wayne Law Review; a faculty-library-lounge; and student lounges and lockers.

A third building in the law complex was opened in 1971. It currently houses the offices of the Clinical Advocacy Programs, Michigan Legal Services Assistance Program, Employment Discrimination Clinic, Employment Services, Free Legal Aid Clinic, Student Board of Governors, and other student organizations.

ARTHUR NEEF LAW LIBRARY

The Law Library, named in honor of Dean Emeritus Arthur Neef who served as Dean of the Law School from 1936 to 1967, is open to the faculty and students of the Law School, as well as the University community at large, members of the legal profession, representatives of state and federal agencies, alumni, and students of other law schools.

In response to the ever-growing demands made upon its resources, the Library collection expanded from 45,000 volumes in 1962 to 73,000 in 1967, and now contains approximately 140,000 books and periodicals, making it the second largest law library in the state of Michigan. About 700 periodicals, as well as the filings for more than 500 looseleaf services, are received regularly. In the fall of 1971 the Wayne State University Law Library was designated as an official depository for United States government publications. As an official depository, the Library added approximately 2500 new serial titles to its acquisitions list.

In addition to a virtually complete collection of all Michigan legal materials, the Library contains the reported cases of the highest courts of all the states and territories and some of the lower court reports, as well as all available current statutory compilations. It also contains such other state materials as legislative reports, session laws, and attorney general reports. There are sets of all federal cases, statutes, treaties, and court rules available in numbers adequate for active research by faculty and students. In addition, the Library has such research aids as digests, citators, legal encyclopedias, dictionaries, form books, looseleaf services, indexes, and reference works. All American and some foreign law reviews and similar legal publications are available. There are significant holdings of films, microforms, pamphlets, and the like. 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 Library has benefited greatly from the generosity of two donors who have made major contributions in recent years. Dr. Alwyn V. Freeman made a very substantial gift of international and comparative legal materials, a great part of which now forms the Alwyn V. Freeman International Law Collection. A further gift, consisting of 3,000 volumes of basic legal materials to be used primarily by the Wayne Law Review, was made in honor of Judge Robert S. Marx by his testamentary trustees. The Library also contains sizeable foreign law holdings.

ACADEMIC PROGRAMS AND DEGREES

The Law School offers academic programs leading to the degrees of Juris Doctor (J.D.), Master of Laws (LL.M.), and Master of Medical Jurisprudence (M.M.J.). It also conducts a summer session in urban legal studies, and participates with the Law School of the University of Michigan and the State Bar of Michigan in operating the Institute of Continuing Legal Education, which offers specialized courses to practicing lawyers.

The J.D. is a graduate degree requiring as a prerequisite an undergraduate degree at the level of the Bachelor of Arts. The LL.M. is a graduate degree in law offered by the Law School in the fields of taxation and labor law, and requiring as a prerequisite the J.D. or its equivalent. The M.M.J. is a graduate degree offered to those holding the M.D. degree.

DOCTOR OF LAW (J.D.) DEGREE

The Juris Doctor degree is conferred upon students who are admitted as candidates for the degree and who have satisfactorily completed the program of study prescribed in the academic regulations of the Law School. This includes the completion of 120 credits of passing work with an average grade of 2.0 or better, and full-time residence for a period of three years, or its equivalent. In addition to the regular three-year degree program, the Law School offers an evening program intended primarily for those students who work during the day and are unable to devote their full time to the study of law. It permits the student to complete requirements for the J.D. degree in either four or five years. Generally, a student in the four-year program attends classes five nights a week completing about thirty quarter credits each year, and a student in the five-year program attends classes four nights a week completing about twenty-four quarter credits each year. Evening classes ordinarily meet from 6:20 to 8:30 p.m. The course of instruction and the faculty are identical to that of the day session. After the first year required courses are completed, students may elect courses in day and evening divisions simultaneously.

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.

COMBINED LAW AND GRADUATE STUDIES

The Law School allows students, who wish to do so, to pursue a master's degree in a field other than law concurrently with their study of law. Qualified students, after their first semester in Law School, may apply to the Law School for *permission* to take a combined degree program and to the appropriate school or college of the University for *admission* as a master's candidate. If admitted, students may divide their time between the Law School and the concurrent program of study, devoting sufficient time to each

to meet the academic and residence requirements of both schools. This program will require a minimum total of four years of study at the University.

Students who are interested in taking certain courses related to their legal training in other schools and colleges of the University may receive credit towards their law degree for the satisfactory completion of such work. The student must first secure the approval of the Law School to register for such courses, and the amount of Law School credit granted for such courses will be determined by the Dean. For detailed information on graduate courses and programs in the University, the bulletins of the other schools and colleges should be consulted.

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 corporate and finance law — a program which combines work on taxation and labor law with advanced corporate courses and related graduate courses in economics and business administration. The LL.M. program is a part-time evening program designed primarily to meet the needs of practicing lawyers in advanced training in taxation or labor law and ordinarily takes three years to complete. The requirements for obtaining the LL.M. are (1) satisfactory completion of thirty-six quarter credits in course work (the normal maximum load permitted is six credits per quarter), and (2) satisfactory completion of a legal essay under the direction of an instructor, in which the student registers for an additional three quarter credits of essay supervision. Graduation from an accredited law school in the United States is a prerequisite for admission to the LL.M. program. In addition, consideration is given to the applicant's academic standing in law school and to his background in the field in which he wishes to work. Application blanks and further information about the LL.M. program may be obtained by writing to the Director of the Graduate Program in Law, Law School, Wayne State University, Detroit, Michigan 48202. In addition to filing a completed application, applicants for the LL.M. program should arrange to have the law school they attended send a complete transcript of their record.

MASTER OF MEDICAL JURISPRUDENCE (M.M.J.) DEGREE

The master's program in Medical Jurisprudence is designed to permit medical school graduates interested in medico-legal work to acquire familiarity with law and legal procedure related to this field. It is a part-time program, to be taken over a two- or three-year period while the medical graduate is in internship or residency programs or in practice. The requirements for obtaining the degree are (1) satisfactory completion of forty-two quarter credits in course work, consisting of a number of basic required courses plus approved electives from the regular basic professional program of the Law School; (2) satisfactory completion of a thesis under supervision of a joint committee of Law School and Medical School faculty. At least six quarter credits of thesis supervision credits will be required of the student in addition to the

course credits specified above. The M.D. degree is required for admission to this program. Further information about this program may be obtained by writing to the Director of the Graduate Program in Law, Law School, Wayne State University, Detroit, Michigan 48202.

EMPLOYMENT DISCRIMINATION CLINICAL LAW PROGRAM

The Equal Opportunity Clinical Program was established at Wayne State University Law School in 1972 with a grant from the Federal Equal Opportunity Commission. In this program in employment discrimination litigation, law students will be offered clinical or traditional seminars on employment discrimination. Under the clinical program, students will work on actual cases as fact gatherers and take part in various stages of the administrative and court proceedings. It will also include symposia and continuing legal education programs of the practicing bar to give them a better understanding of the Title VII Equal Employment Opportunity Act enforcement mechanisms. The director of the program is Adjunct Professor Lutz Prager.

CENTER FOR THE ADMINISTRATION OF JUSTICE

6001 Cass Avenue

The Center for Administration of Justice was established at the Law School in 1971 with a grant from the Kellogg Foundation and the Law Enforcement Assistance Administration. The Center is concerned with the need for in-service educational opportunities for Michigan judges, the need to develop applied research and evaluation projects affecting judicial administration in Michigan, and the need for community leadership conferences bringing together representatives of key segments of Michigan communities and of Michigan judiciary. The director of the Center is Acting Dean B. J. George, Jr.

COMBINED LAW SCHOOL - MONTEITH COLLEGE PROGRAM

The Law School and Monteith College of Wayne State University have initiated a combined liberal arts-law degree program which permits a continuing reflection on the interrelationship between law and the humanities for seven years, in place of the restricted study of each at a particular time. Undergraduates selected during their freshman year enroll in one law school course in their sophomore year and take additional law courses in their junior and senior years to complete course requirements for the first year of Law School when they receive their bachelor's degree. The students in this program who meet Law School admission requirements are eligible to enter the Law School for three additional years toward a Juris Doctor degree. Since they have completed their first year of law studies, these students are freed for in-depth studies in disciplines related to the law, such as philosophy, psychology, sociology, history, and economics.

INSTITUTE OF CONTINUING LEGAL EDUCATION

312 Hutchins Hall, 625 South State Street,
Ann Arbor, Michigan 48104

The Institute of Continuing Legal Education is a joint venture of the University of Michigan Law School, Wayne State University Law School and the State Bar of Michigan. Its primary responsibility is the formulation and administration of a program to facilitate the transition from law school to active practice, to improve the general professional competence of the members of the bar and to provide advanced specialty courses for the practitioner. The director of the Institute is Austin G. Anderson.

CLINICAL ADVOCACY PROGRAM

The Law School offers a Clinical Advocacy Program which permits second and third year law students to directly represent indigents in criminal and quasi-criminal actions in Detroit courts, criminal misdemeanor and civil proceedings in State courts, and *habeas corpus* petitions in the Federal courts. This important educational program was initially financed by a grant from the Council on Legal Education for Professional Responsibility.



ACADEMIC PROCEDURES

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the Law School.

ADMISSION

To The Law School

Admission to candidacy for the J.D. degree is based on a judgment as to the applicant's capacity for the study of law. The applicant must be a graduate of an accredited college or university and should normally have a strong grade average in his college work and an above-average score on the Law School Admission Test referred to below.

The Law School has no fixed requirements with respect to the content of pre-legal education, but its Admissions Committee will take into account the nature of college work done, as well as the grades achieved. In general, an undergraduate liberal arts education is preferred to one which is narrowly specialized.

For additional information, see the current *Pre-Law Handbook* edition, published and prepared by the Law School Admission Test Council and the Association of American Law Schools. This book includes material on the law and lawyers, pre-law preparation, applying to law schools, and the study of law, together with individualized information on most American law schools. It may be ordered from the Educational Testing Service, Princeton, New Jersey 08540.

Each applicant for admission should submit a completed application form to the Admissions Office, Law School, Wayne State University, Detroit, Michigan 48202, together with a check or money order for \$15.00, payable to Wayne State University.¹ This application fee is not refundable and is not applied against tuition in the event of admission. Applications should not be filed earlier than September of the year prior to that in which the applicant is seeking admission.

Each applicant should observe the following procedures:

1. Register with the Law School Data Assembly Service (LSDAS). Registration form may be obtained by writing to LSDAS, Educational Testing Service, Box 944, Princeton, New Jersey 08540. The registration form should be sent directly to the LSDAS, *not to the Law School*.
2. After registering with LSDAS, have official transcripts sent from each college or university attended to LSDAS, Educational Testing Service, Box 944, Princeton, New Jersey 08540, *not to the Law School*.

¹ An application for admission form may be obtained from the Law School Admissions Office.

The LSDAS will analyze the transcript and send a copy to this law school and others you designate on the registration form. If you are accepted, you will be asked to submit a final transcript, showing the award of a bachelor's degree, directly to the Law School. Applicants may submit to the Law School supplementary transcripts covering any work completed *after* initial registration with LSDAS.

Letters of recommendation are neither required nor encouraged.

Each applicant for admission must take the Law School Admissions Test administered by the Educational Testing Service. The tests are given in October, December, February, April, and July each year in centers located throughout the United States. One of these centers is located in Detroit. Application blanks and information concerning exact dates, times and places of the tests may be obtained from the Law School Admission Test, Educational Testing Service, Princeton, New Jersey 08540. Applications should be filed no later than thirty days in advance of each indicated examination date.

It is recommended that applicants take the test as early as possible during their senior year at college, preferably in October or December, and, in any event, no later than February. It is not necessary that an application for admission be on file with the Law School before taking the test, but applicants should be sure to request the Educational Testing Service to send a copy of their test scores to this School.

Beginning students may enter the Law School only in the fall term of any academic year, and all applications for admission, together with all necessary papers (LSDAS reports and test scores), must be on file with the Law School before April 15 of the year in which admission is sought.

The combination test scores, academic record, and other relevant information, will be reviewed in each case by the Admissions Committee. The Committee may request additional information from an applicant or suggest a personal interview. Applicants who feel that they have special problems not covered in this Bulletin should consult with the Director of Admissions at the Law School. Except under special circumstances, personal interviews are not encouraged.

ADMISSION WITH ADVANCED STANDING

Students at other accredited law schools may apply for admission with advanced standing, but must have completed at least a full year of law study. If admitted, they may, at the discretion of the Dean, be granted up to two years of credit for work done elsewhere. Applicants for admission with advanced standing must meet the Law School's general requirements for admission to the J.D. program and must be in good standing at the school from which they seek to transfer. No action will be taken on their applications until final grades in all courses are received.

Admission with advanced standing may also be granted to students of foreign law schools under like conditions as determined by the Dean.

FEES

Application Fee

A fee of \$15.00 must accompany the application for admission. The fee is to defray in part the cost of processing the application and is not refundable.

Admission Deposit

An admission deposit of \$50.00 is required of each applicant admitted to a first year program in the school and is payable upon notification of acceptance. The purpose of this deposit is to reserve a place in the class for the entering student. The deposit is refundable only upon application prior to June 15 and will be applied against the tuition if the applicant enrolls.

Tuition and Fees

For Michigan residents the fee for the academic year 1973-74 is \$946.00, or \$473.00 for each of two terms. For non-residents the fee for the 1974-75 academic year is \$1,981.00, or \$990.50 for each of two terms. Students may make a minimum deposit when they register each term, with the balance due in two approximately equal payments thirty to sixty days 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.)

For students enrolled in a reduced program, the following fee schedules apply:

Quarter Credits	Resident	Nonresident
1 - 4	\$119.50	\$227.50
Each credit, 5 - 18	25.25	54.50
18 - 24	473.00	990.50
Each credit over 24	24.25	53.50

Law students who elect courses in other colleges shall pay the appropriate fee as though all courses were part of their annual law program.

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

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

During the first two weeks of classes.....	\$10.00
Thereafter	25.00

Cancellation of Fee Charges

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

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

A notice of withdrawal or reduction sent by mail will be considered effective at the time shown by the postmark for the purpose of adjusting fees.

Consult Registrar for summer fee cancellation schedule.

Graduate Fees

Listed below are the graduate fees currently in effect. They are subject to change at any time without notice by action of the Board of Governors.

Credits	Resident	Nonresident
1—4	\$117.00	\$262.00
5	137.00	323.75
6	157.00	385.50
7	177.00	447.25
8	197.00	509.00

BOOKS

Books for classroom use entail an initial expenditure of about \$150 per year, but in succeeding years savings may be effected by the disposal of books previously used. The University maintains two bookstores on campus; law books are available at Bookstore North, 5450 Cass Avenue.

APPLICATION FOR DEGREE

Students who anticipate graduating in June of an academic year must file an application for degree in the Law School Records Office not later than March 29 of that year. Students who anticipate graduating in December of an academic year must file an application for degree not later than October 11 of that year.

BAR EXAMINATIONS

Students who contemplate practicing law in states other than Michigan should consult the Director of Admissions, at the

*For students who have been required to pay the \$50.00 deposit, the amount of refund will be 100 per cent less \$50.00.

earliest opportunity, with reference to the requirements of such states. In several states prospective candidates are required to notify the bar examiners at the beginning of their law study of their intention of taking the examinations upon graduation.

There are no special requirements in Michigan apart from certification of graduation from the Law School, filing of the necessary application, and payment of the examination fee to the Board of Law Examiners.

Beginning in the summer of 1974, Michigan began giving the objective multi-state bar examination as part of its examination. This objective test is supplemented by essay questions in specific areas of the law. The examination is given twice a year, in late February and July.

Although the curriculum of the school is not primarily designed for preparing students to pass the various state bar examinations, substantially all of the subject matter of the examinations is covered adequately in the regular courses. However, the objective of the school is the development of an understanding of the theory of law, its application, and the techniques of practice — in other words, to prepare a student for the practice of law. At the present time, the State Bar Examiners find themselves limited to the much narrower question of the applicant's knowledge as indicated by a written examination in certain subjects. But inasmuch as the applicant must pass the examinations in order to practice, it is incumbent upon him to prepare for them. Generally the best plan is to review the courses in which examinations are to be given (list of subjects may be obtained from the Law Library), supplementing this with study of state cases and legislation.



FINANCIAL AIDS AND SCHOLARSHIP AWARDS

The Law School has a financial aid program designed to help assure that a student will not be denied a law school education because of insufficient family and personal resources. The program is designed, within the limits of available funds, to supplement a student's own resources with financial aid to cover his expenses. A few scholarships are available for first year students on the basis of need and exceptional promise. Some financial aid awards are based entirely on need, while other scholarship fund awards are made on a combination of need and academic achievement. To the extent that funds are available, the School will seek to assist students who make a reasonable showing of need to meet a standard law school budget. Applications for financial aid must be submitted anew each year.

A candidate applying for a scholarship should secure and fill out the financial aid forms provided by the Graduate and Professional School Financial Aid Service (GAPSFAS), which are included in the Law School Admissions Test brochure, and send them directly to the Educational Testing Service *not to the Law School*. The Educational Testing Service will analyze the information contained in these forms and forward the results to the Law School.

While there is no legal obligation to repay scholarship and grant awards, it is the School's expectation that students receiving these awards will understand that the continuation and success of this program depends, in large measure, upon a return of the funds granted.

Nearly every state has a program to make loans available for law students, both in state and out-of-state. Many of these loans are interest free while the student is in school. The Federal guaranteed loan program is administered by the University financial aids office, and applications for, as well as information concerning, these loans should be obtained from the Office of Scholarships and Financial Aids, 222 Administrative Services Building, Wayne State University, 100 Antoinette, Detroit, Michigan 48202.

Students interested in an American Bar Association loan may obtain application forms from the Director of Admissions at the Law School. After these are properly filled out, they should be returned to that office for completion and forwarding to the American Bar Association.

SCHOLARSHIPS

Bodman-Longley Award — This fund was established by the firm of Bodman, Longley, Bogle, Armstrong and Dahling. An annual award of \$500 will be made to the outstanding minority-group student entering his senior year who needs financial assistance.

Clarence M. Burton Memorial Scholarships — Through the continuing generosity of the Clarence M. Burton Memorial Foundation substantial cash awards are made to outstanding

seniors holding the principal positions on the editorial staff of the *Wayne Law Review*.

The Alexander Freeman-Hague Academy Award—This fund was established to help defray expenses for one individual (faculty member or law student) chosen by the Dean to attend the Hague Academy of International Law.

The Alexander Freeman Scholarships—Funds for this scholarship were provided by the late Mr. and Mrs. Alexander Freeman in recognition of the important contributions made in the fields of international and comparative law by Dr. Alwyn Freeman. A scholarship is awarded annually to a student who is particularly interested in these areas of the law and expects to pursue a career in them. These funds can, to a limited extent, be used for loan purposes.

Jason L. Honigman Scholarship—Through the generosity of Mr. Jason L. Honigman, senior partner in Honigman, Miller, Schwartz and Cohn, this award is made to the Editor-in-Chief of the *Wayne Law Review*.

The Edna Josephson Memorial Scholarship—This fund is provided by Professor Michael S. Josephson in memory of his mother, Edna Josephson. Scholarships will be awarded on the primary basis of financial need.

Law School Fund Scholarships—The Alumni Association and friends of the Law School provide awards of varying amounts for students of academic ability who are in need of financial assistance.

Law Wives' Club Scholarship—Each year the Law Wives award scholarships to a deserving married student on the basis of need and scholarship. These scholarships are open to day and evening students.

The Arthur F. Lederle Scholarships—Funds for applicants to the first-year class having both financial need and the potential for superior academic work were provided by the family and friends of the Honorable Arthur F. Lederle. Judge Lederle, a distinguished member of the United States District Court, now retired, has been active in the Law School program from its beginning.

The Robert S. Marx Scholarship Fund—Judge Robert S. Marx was a highly respected jurist, lawyer and law teacher whose career encompassed many activities in his native city of Cincinnati and in Detroit. The Trustees of his estate, in recognition of his interest in legal education, have made a generous grant to the Law School for scholarships for worthy students in their senior year.

Minority Law School Financial Aid Fund—Funds are provided by various Detroit area law firms and miscellaneous contributors interested in furthering the law school education of minority group students.

Boaz Siegel Book Awards—This fund was established in 1973 by Professor Emeritus Boaz Siegel for worthy law students who need financial assistance.

The Max Smitt Law Scholarship—This fund is provided by Helen S. Warren as a memorial to her late brother, Max Smitt, an eminent member of the Michigan State Bar, for scholarships for needy students with high scholastic standing.

William D. Traitel Scholarship Fund—William D. Traitel was engaged in real estate enterprises and had a special interest in the development of the University. His bequest to W.S.U. was designated for scholarships for second and third year law students on the basis of superior academic achievement and financial need. These funds can, to a limited extent, be used for loan purposes.

University Scholarships—A number of scholarships which provide for the remission of all or part of the fees are available to law students based both upon scholarship and the demonstration of need.

Substantial contributions to the scholarship funds were made during the past year through the Harry B. Keidan Memorial, Rowie Ruch Memorial Fund, Lawyers' Wives of Livonia, and the Mexican American Legal Defense and Educational Fund.

AWARDS AND PRIZES

American Jurisprudence Awards—The joint publishers of *American Jurisprudence*, the Bancroft-Whitney Company and The Lawyers Cooperative Publishing Company present to the students attaining the highest grades in certain courses bound copies of the material available on those topics in *American Jurisprudence*.

Arthur L. Robbins Award—An annual award of \$100 is made for excellence in practice court work, with the trial brief submitted by the student given particular weight in the judging. This award was established by the family and friends of Mr. Robbins, a 1931 graduate of the Law School.

Certificate Awards—Student leaders in such activities as the Free Legal Aid Clinic, Law Review, Moot Court, and the Student Board of Governors are recognized for their noteworthy service to the school by being awarded certificates of merit.

Corpus Juris Secundum Awards—The American Law Book Company awards a selected title of *Corpus Juris Secundum* to a student in each class of the day and evening divisions for significant contribution to over-all scholarship.

The Edward H. Rakow Memorial Fund—This fund was established in memory of Edward H. Rakow by the Federal Bar Foundation of Detroit to promote interest in securities regulation. An award is made each year to a junior or senior law student on the basis of need and scholarly achievement in corporate and securities subjects.

Law School Alumni Appellate Moot Court Award—The Alumni Association of the Law School annually awards a prize of \$200 to be divided between the winning teams in the Appellate Moot Court Competition. Plaques are given to the team members who submit the best brief in the Junior Competition.

Nathan Burkan Memorial Competition—This competition was originated in 1938 by the American Society of Composers, Authors and Publishers to stimulate interest in the study of copyright laws. Annual awards of \$250 and \$100

will be made to the two seniors whose papers on some topic of copyright law are found by the Dean to be the best submitted.

Phi Delta Delta Award—The Detroit chapter of Phi Delta Delta makes an annual award to a graduating woman student for outstanding achievement.

Renfrew Prize in Legal History—Established by James Renfrew, class of 1947, to promote interest in legal history, an award is given for the best essay, monograph, book or article on any subject which has English Common Law origin.

Robert S. Marx Prize Award—At the discretion of a committee set up for this purpose, awards of varying amounts may be made for the best work in advocacy and trial practice.

Samuel Schwartz Memorial Scholarship Fund—The Samuel Schwartz Memorial Prize, an annual award of \$75, is given to the author of the outstanding student contribution to the *Wayne Law Review* in the fields of labor relations law, workmen's compensation law or unemployment compensation law. Mr. Schwartz was a 1952 graduate of the Law School.

Scholarship Keys—Gold and silver keys are awarded to seniors who have demonstrated outstanding academic achievement; silver and bronze keys are awarded to juniors; bronze keys are similarly awarded to freshmen.

United States Law Week Award—A year's complimentary subscription to *Law Week*, a prize of approximately \$150 value, is given to the graduating student in law who, in the judgment of the faculty committee, has made the most satisfactory scholastic progress in his final year.

LOANS

Information about the following loans may be obtained from the Law School.

American Bar Association Student Loan Program—The American Bar Association Managing Committee administers a federally insured loan fund, established under the Higher Education Act of 1965. Loans are available to law students in varying amounts up to a maximum of \$2500 per academic year. Repayment of the loans, at an overall interest rate of seven per cent, need not begin until after graduation or withdrawal from the Law School. Prior to the beginning of the repayment period, the Federal Government pays to the lender the total interest up to seven percent simple interest for those students who qualify for interest subsidies. Application forms and further information may be obtained from the Director of Admissions, Law School.

The Ernest C. Wunsch Student Loan Fund—Established by the late Mr. Wunsch of the Detroit Bar, a member of the participating faculty of the Law School, and his friends, this fund provides short-term loans to students for tuition, books or other emergency needs where there is reasonable prospect of repayment prior to the next academic year.

Joseph S. Radom Loan Fund—Established by Joseph S. Radom, class of 1937, to provide financial assistance to law students for tuition, books and supplies.

Leon Cousens Memorial Loan Fund—This loan fund was established to provide financial assistance for law students, primarily for tuition, books and supplies.

Alexander Freeman Loan Fund—This loan fund was established to provide financial assistance for junior and senior law students having the requisite grade average and financial need. The funds are available as interest bearing and non-interest bearing loans, on the basis of repayment after graduation and before graduation, respectively.

Law Student Emergency Loan Fund—A limited amount of funds are available for short term loans to law students, for tuition, books and supplies.

William D. Traitel Loan Fund—This loan fund was established to provide financial assistance for junior and senior law students.

The following loan funds are administered by the Office of Scholarships and Financial Aids, 224 Administrative Services Building, Wayne State University, Detroit, Michigan 48202.

Michigan State Higher Educational Assistance Authority—The Authority makes it possible to procure loans from banks at a favorable interest rate.

National Defense Student Loans—The National Defense Student Loan Fund provides loans which are interest free during the time that the student is regularly enrolled and which are payable in installments over a period of years with three per cent interest. The first payment is due six months after graduation or withdrawal from school.

A list of other University scholarships and financial aids can be secured from the Office of Scholarships and Financial Aids, 224 Administrative Services Building, Wayne State University, Detroit, Michigan 48202.

LAW SCHOOL ACTIVITIES

FREE LEGAL AID CLINIC

A student-run organization, the Free Legal Aid Clinic provides free legal services to indigent Detroiters in both criminal and civil cases. The students, supervised by faculty approved practicing attorneys, are permitted by Michigan Court rules to represent their clients in courtroom hearings.

MOOT COURT

The Moot Court Board assumes responsibility for running the moot court program. Members of the board are selected on the basis of academic excellence and proficiency in the moot court competition. The board members select and prepare case problems for argument, advise the competing teams, judge the briefs and oral arguments, and administer the entire program. Active participation on the board is rewarded by honors recognition on the student's permanent law school record.

The moot court competition is conducted under the auspices of the Moot Court Board. In the day school, participation is mandatory in the first year, and optional thereafter.

The competition introduces the students to the art of effective advocacy. In teams of two, the first-year students prepare briefs and present oral arguments on problem cases of current legal interest. The judges, drawn from members of Detroit law firms, the law faculty, and the Moot Court Board, subject the competing teams to the rigorous questioning traditional in American appellate practice. Two teams are selected from winners in the second-year competitions to argue against each other before a panel of distinguished judges as part of the Law School's annual Law Day celebration. Prizes are awarded to the finalists by the Law School Alumni Association, and the Robert S. Marx Fund. The third-year National Team represents the School in the regional round of the National Moot Court Competition. Victors in the regional round go on to represent their school in the National Competition held each year in New York City.

ORDER OF BARRISTERS

The Order of Barristers is a national honorary organization whose purpose is the encouragement of oral advocacy and briefwriting skills through effective law school appellate moot court programs. The Order also serves to recognize, on a national basis, those individual law students who have excelled in moot court activities in their respective law schools.

STUDENT BAR ASSOCIATION

The Student Bar Association is a member of the Law School Division of the American Bar Association.

All general student activities are the initial responsibility of the Student Bar Association to which all students belong.

The Association sponsors special convocations on current topics of interest, holds faculty-student social affairs, places student members on student-faculty committees and annually publishes a student directory. The Student Board of Governors of this organization is composed of an elected representative of each day and evening class and major student organization, and a four-man elected executive board. Meetings are held weekly at which all students are welcome. The board serves as a liaison between students, faculty, and administration.

WAYNE LAW REVIEW

The *Wayne Law Review*—published four times during the school year—is a scholarly journal containing articles by leading jurists, law teachers and lawyers, and notes and comments written by students at the Law School. Each year the *Wayne Law Review* devotes one issue to an annual survey of Michigan Law which, over the past several years, has gained wide recognition and approval from members of the legal profession throughout Michigan. Junior members are chosen on the basis of academic performance and writing ability. The senior Editorial Board is chosen from the senior members by the outgoing Board. *Law Review* offers an excellent opportunity for improving research, writing and editorial skills and contributing to legal literature.

EMPLOYMENT SERVICE

The Employment Service provides a register for students and graduates to assist them in getting suitable positions. Lawyers, governmental agencies and corporation legal and trust departments are provided with office facilities at the School in which to conduct interviews with applicants. The Student-Faculty Committee on Employment Services works continuously to bring suitable positions and persons together. In this effort the Committee receives strong support and cooperation from the Law School Alumni Association and many individual alumni. Wayne's unique geographical location in a tri-county area that contains approximately 9,000 attorneys provides many opportunities for summer clerkships.

LAW SCHOOL ALUMNI ASSOCIATION

The Law School Alumni Association, consisting of about 2500 graduates of the Law School, maintains an active interest in the program of the School. The Association holds a Homecoming Day annually, featuring a luncheon meeting and various panel discussions on legal topics by faculty, alumni and other distinguished members of the bench and bar. It provides financial assistance to various activities of the Law School and contributes to the scholarship fund.

THE COMMITTEE OF VISITORS

The Wayne State University Law School Committee of Visitors is composed of leading members of the legal profession, drawing both from the WSU Law Alumni Association and the legal profession at large, including members of the

judiciary. Members are selected for their great interest, their abilities and their willingness to contribute significantly to the operation and development of policies and programs for the Law School. The Committee currently meets once a year, and may in the future convene more often. The Committee is in the process of being restructured to achieve greater contact and dialogue between the Committee and the Law School.

CONVOCATIONS

The Law School holds an Honors Convocation each year to honor students who have received scholarships and awards for academic achievement, and those who have been granted special awards and prizes for meritorious work in various law school activities such as Law Review, Moot Court, Free Legal Aid Clinic, and Student Board of Governors.

In June, a Senior Convocation honors the graduating class, calling special attention to those graduates who by scholarly achievement have won scholarship keys and degrees with honors.



COURSES OF INSTRUCTION¹

A schedule of courses and instructors for each academic year will be issued by the Law School prior to the time for registration. This schedule lists the days and hours at which classes meet.

The following description of courses is intended only to convey a general idea of the range of instruction offered at the Law School and is subject to change.

Basic Law (BL)

First Year

The first year program is prescribed for all J.D. candidates.

0600. Civil Procedure. Cr. 3-9 (9 required).

Structure of the judicial system in the United States and of the process of civil litigation from the commencement of an action through appeal. Subjects considered include jurisdiction, the relationship between state and federal courts, pleading, discovery and other pre-trial devices, trial, and appellate review. Professors Adelman, Hetzel, A. Lombard.

0602. Contracts. Cr. 3-9 (9 required).

General principles of the law of contracts: definition of contract; offer, acceptance and consideration; capacity to contract; illegality, mistake, frustration, impossibility; Statute of Frauds, interpretation; the parol evidence rule; performance and breach; rescission, repudiation and discharge. Remedies, including damages, specific performance, injunction and restitution. All topics will be considered from the viewpoint of both common law and statute. Professors Friedman, Harbrecht and Tierney.

0603. Criminal Law. Cr. 2-4 (4 required).

General doctrines of criminal liability as they relate to the moral and social problems of crime; definitions of principal crimes and defenses to criminal prosecution, both common law and statutory; limitations on the use of criminal sanctions. Professors George, Lamborn, Tierney and Wise.

0604. Legal Writing and Research. Cr. 2-6 (6 required).

Analysis of legal problems and the use of legal materials, through discussion, written assignments, and personal conferences. Preparation of an appellate brief and oral argument of a selected civil or criminal case before a court composed of faculty or members of the local bench and Bar. Professor Blair and Legal Writing Staff.

0605. Property. Cr. 3-9 (9 required).

Historical introduction to real property with detailed consideration of the modern law of possessory estates, methods of creating them, their nature and characteristics, including non-freehold estates; landlord and tenant, their nature, creation and characteristics, and the rights, duties and liabilities arising from the landlord and tenant relationship; concurrent estates; history and significance of the Statute of Uses, its effect on modern trusts, conveyancing, and future interests; restraints upon the use of land through private agreements, covenants and servitudes; conveyancing and effects of the Recording Acts upon conveyancing; land use planning and its relationship to the current urban crisis. Professors Callahan, Carlin, Lanning and Mogk.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0606. Torts. Cr. 2-7 (7 required).

Legal principles underlying wrongs not based on contract, arising from intentional or negligent conduct and including strict liability; the nature of particular wrongs, including injuries to the person, to reputation, to real or personal property, and to interference with business or family relations. Professors Littlejohn, F. Lombard and Slovenko.

Upper Class Program — Required Course

0601. Constitutional Law I. Cr. 5.

Problems arising under the Constitution of the United States, with particular attention to the nature of judicial review in constitutional cases and to the role of the judiciary in umpiring the federal system. Professors Glennon, Hain and Kelman.

Electives

0609. Introduction to Law. Cr. 1.

Structure of legal system; international, federal, state and municipal; sources of law; treaty, custom, statute, judicial decision; legal process and reasoning; Constitutional considerations; court jurisdictions, hierarchy; precedent and stare decisis; retroactivity; distinctions between civil and criminal law; methodology of legal research. Professor Tierney.

0612. Michigan and Federal Procedure. Cr. 4.

Prereq: B L 0637. Not open to students who have taken Basic Law 0694 and 0695. Michigan statutes, court rules and cases pertaining to appellate procedure, including jurisdiction, commencement of an action, pleadings, pre-trial procedure, motion practice, trial, verdict and appeal in civil cases. Parallel provision of federal statutes and court rules used as basis for comparative study. Professor Schloff.

0614. American Legal History. Cr. 3.

Interplay between the legal system and society at large; the American Revolution and the framing of the U.S. Constitution; the law's role in economic development; race relations; judicial activism vs. judicial restraint; the development of civil liberties; the legal status of women; violence and the law. Professor Glennon.

0615. Administrative Law. Cr. 3-4.

Prereq: B L 0601. Powers and procedures of administrative agencies in the United States; methods of review and jurisdiction of the courts over administrative action. Professor Glavin.

0616. Admiralty Law. Cr. 3.

Admiralty jurisdiction; personal injury and death; charter parties and bills of lading; collision and limitation of liability. Professor Hoppe.

0617. Antitrust I. Cr. 3.

Government control of trade practices and industrial market structures which inhibit the competitive process including a study of the problems raised by monopoly, oligopoly, mergers and cartel practices under the Sherman, Clayton, and Federal Trade Commission Acts. The underlying economic, political, and social philosophy of the American system of controlling markets. Professors Adelman and Huth.

0618. Antitrust II. Cr. 3.

Prereq: B L 0617. Treatment of distribution arrangements, resale price control, franchising, patent licensing, foreign commerce and

price discrimination under the Sherman, Clayton, Federal Trade Commission, and Robinson-Patman Acts. The role of antitrust principles in regulated industries and legislative proposals directed at restructuring certain oligopolistic industries. Professors Adelman and Huth.

0619. Business Planning. Cr. 6-12 (12 required).

Credit only on completion of two quarters. Prereq: B L 0630 and B L 0671. Organizational problems for the closely held and the public corporation; operational problems such as stock distributions, issuance of new securities, constructive dividend problems, and stock redemptions; corporate acquisitions, other reorganizations, contested take-overs, and liquidation and termination problems. Professors Schenk and Schulman.

0621. Clinical Advocacy: Criminal Defense Techniques. Cr. 10.

Prereq: B L 0633, B L 0637, and consent of instructor. Students represent indigent defendants in misdemeanors and work on felony cases. Class work and clinical training in investigation, preparation, and trial techniques; research on developing areas within the criminal justice system. Professor Barkai.

0623. Comparative Law. Cr. 3.

Comparison of the methods and sources of common and civil law; background and structure of the principal Civil Codes; analysis and study of problems arising in the context of foreign legal systems. Professor Juenger.

0624. Conflict of Laws. Cr. 2-6 (6 required).

Principles, rules and methods thought to underlie the resolution of multi-state problems. Jurisdiction and enforcement of judgments of other states. Professors Juenger and Shuman.

0626. Constitutional Law II. Cr. 6.

Prereq: B L 0601. Individual rights under the Constitution of the United States. Freedom of speech, religious freedom and equal protection. Professors Friedman, Glennon and Stickgold.

0628. Legal Control of the Competitive Process. Cr. 3.

Substantive patent, trademark, copyright, trade secret and misappropriation law will be covered in sufficient depth to provide background knowledge for those interested in the general law practice and to provide a foundation for future specialization. The central dilemma underlying the creation of property in intangibles will be emphasized. A technical background is not required. Professor Adelman.

0629. Corporate Mergers and Consolidations. Cr. 3.

Professor Schulman.

0630. Corporations. Cr. 3-6 (6 required).

Relationships between owners and directors of a corporate enterprise; different types of stock ownership and the corresponding rights in profits and control; consolidation and merger; distinctive features of the closed corporation. Professors Glavin, Harbrecht and Schulman.

0631. Creditors' Rights. Cr. 3-4.

Prereq: B L 0667 or former 0622. Limited to students having completed two years of law study. Problems arising when debtors are in financial difficulty, including the principal remedies of unsecured creditors such as attachment, garnishment, and enforcement of judgments; alternatives to bankruptcy; bankruptcy proceedings. Professors Henson and A. Lombard.

0633. Criminal Procedure I. Cr. 3-5.

Prereq: B L 0601 recommended. Constitutional requirements for

arrests, searches, seizures, electronic surveillance, and interrogations. Professors Borman, George, Glennon and Lamborn.

0635. Equitable Remedies. Cr. 3.

Equity as a specialized mode of dealing with diverse legal problems, including the availability and characteristics of equitable relief and the enforcement of equitable decrees. Public law problems; injunctions as a method of dealing with picketing, pollution, improper governmental actions. Professors Littlejohn and A. Lombard.

0636. Estate Planning. Cr. 2-6 (6 required).

Prereq: B L 0671; coreq: B L 0672 and 0689. Examination and analysis of factors which permit consideration in planning for the management and disposition of accumulated wealth. Special attention to the techniques and limitations suggested or imposed by laws of property, wills, corporations, partnerships, insurance, future interests and federal and state taxation. Professors Bartke and Carlin.

0637. Evidence. Cr. 2-6 (6 required).

General principles relating to the proof of questions of fact in civil and criminal trials including competency, relevancy, and materiality of evidence; judicial notice, presumptions; burden of proof; competency of witnesses, rules relating to examination and cross-examination of witnesses; weight and sufficiency of evidence. Professors Childs, Lax and Slovenko.

0638. Family Law. Cr. 3.

Aspects of family law: illegitimacy, marriage, custody, divorce, adoption; the role of the lawyer, as advocate or counsellor; the contributions of the social sciences. Professor F. Lombard.

0639. Federal Estate and Gift Taxation. Cr. 3.

Prereq: B L 0671. Federal taxation of inter vivos and testamentary transfers with emphasis on the controlling statutes, regulations and other interpretative materials. Professors Tomasulo and Deutch.

0640. Federal, State and Local Tax Relationships. Cr. 3.

Prereq: B L 0671. Federal, state and local tax relationships considering present methods of taxation and new measures to provide for adequate revenue. Professor Schenk.

0641. Free Legal Aid Clinic. Cr. 1-2 (2 required).

Students work in a Free Legal Aid Clinic representing indigent clients in need of legal services. Under supervision of a practicing attorney, students act as counsel from the interviewing stage through any necessary court proceedings. Professor Blair, adviser.

0642. Future Interests. Cr. 3.

Open only to seniors. Not open to students who have taken Basic Law 0636. Wills and trusts in both large and small estates, including the modern heritage of the feudal land law, constructional problems, class gifts, powers of appointment, the rule against perpetuities and associated rules. Professor Carlin.

0645. International Law. Cr. 3.

Basic legal concepts applied by international tribunals and courts of the United States to the relations between independent nations. The nature and sources of international law; the use of treaties; international organizations; and practices respecting recognition, territory, nationality and jurisdiction. Professor Wise.

0647. Judicial Internship. Cr. 1.

Prereq: consent of adviser. Each student is assigned to a participating judge and devotes approximately nine hours a week 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.

0648. Legal Philosophy. Cr. 3.

Analysis of important legal notions such as law, sanction, rule, and sovereignty; relations between law and morals as seen particularly in the development of natural law and legal positivism and in the development of the notion of legal responsibility. Professor Shuman.

0651. Labor Relations and the Law. Cr. 3-6 (6 required).

Legislative, administrative, and judicial regulation of labor relations. The scope of national labor legislation; the protection of the rights of self-organization and the designation of bargaining agents; the negotiation and administration of the collective agreement; the legality of strikes, picketing and boycotts; employer interference with concerted activities; and the relations between unions and their members. Professors Bartosic and Lax.

0652. Land Use. Cr. 3-5.

Prereq: B L 0605. Allocation of land use in the urban environment by both private agreement and governmental order. Problems involved in the development and effectuation of community planning; goals by means of conservation, clearance, and renewal; zoning, variances and exceptions; housing code enforcement, subdivision control, eminent domain; and relocation. Professors Bartke and Callahan.

0655. Law Review. Cr. 1-2.

Open only to Law Review members. Professor Schulman, adviser.

0656. Legal Accounting. Cr. 3.

May not be taken for credit by those who have had any previous college work in accounting. Basic principles of accounting with special reference to situations encountered by practicing lawyers; emphasis on income measurement and related financial statement analysis. Professor Alvin.

0657. Legal History. Cr. 3.

General survey of Anglo-American legal history: the English background; reception of the common law in the United States; the codification movement; main movements in the law of the nineteenth century; the place of various law-making institutions in the growth of the law; Anglo-American law in comparison with the civil law tradition. Professor Wise.

0658. Legal Process. Cr. 4.

Functioning and interrelationships between the institutions and processes of the American legal system. Nature of legal reasoning, the uses and misuses of "stare decisis," the proper allocation of responsibility between the judiciary and the legislature, techniques of statutory interpretation, the role of administrative agencies, and the planning-advising function of lawyers. Professor Kelman.

0659. Legislation. Cr. 3.

The legislative process and its use as an instrument for change; legislative drafting, revision, interpretation and implementation. The appropriations process; role of and control of lobbying; operation of the legislative process and its effect on policy formulation; conduct of Congressional investigations and effects of separation of powers doctrines. The lawyer and the development and implementation of legislation. Professor Hetzel.

0660. Local Government Law. Cr. 3-5.

Law as an instrument for governing urban areas. Distribution of decision-making power between private and public persons, between state and local governments and among various local govern-

ments. Local finance, decentralization, annexation and municipal incorporation. The lawyer's role in formulating governmental policy in major urban complexes. Professors Hain and Hogg.

0661. Michigan and Federal Trial and Appellate Procedure. Cr. 3-6 (6 required).

Prereq: B L 0637. Not open to students who have taken Basic Law 0694 or 0695. Michigan statutes, court rules and cases pertaining to trial and appellate procedure, including jurisdiction, commencement of an action, pleadings, pre-trial procedure, motion practice, trial, verdict and appeal in civil cases. Parallel provision of federal statutes and court rules are used as a basis for comparative study. Practice court involving the trials of a civil or criminal case. Professor Childs.

0662. Moot Court. Cr. 1-2.

Open only to members of the Moot Court Board, who conduct under general faculty supervision the program in the preparation of briefs and the hearings on oral arguments. Professor Henson, adviser.

0663. Juvenile Courts. Cr. 3.

Substantive law of delinquency, incorrigibility, dependency, and neglect; procedures utilized in the juvenile courts. Professor Lamborn.

0664. Professional Responsibility and the Legal Profession. Cr. 3.

Conflicts of interest; the attorney's standard of care, the attorney's fiduciary duty, the organization of bar associations, the attorney's duty to the community and the court; the attorney's responsibilities in trial, and in unilateral actions and negotiations. The duty of disclosure of adverse data, the development of group legal services, and of legal services to the poor, and the responsibility of the Bar in these areas. Judge Gilmore.

0665. Regulated Industries. Cr. 3.

Key concepts underlying regulations of public utilities, financial institutions, business of insurance, and communications—including relation of federal-state regulatory authority, antitrust and regulation, various theories of economic regulation, and social and economic consequences of regulation. Professor Dykhous.

0666. Restitution. Cr. 3.

The law relating to claims founded on the principle of unjust enrichment: quasi-contractual and equitable remedies in cases of fraud, mistake, ineffective agreement, duress, undue influence, and other wrongdoing, waiver of tort; liability to account for benefits received to another's use; unsolicited intervention in emergency situations; benefit from the use of another's ideas and intellectual property. Professors Carlin and Wise.

0667. Secured Transactions in Personal Property. Cr. 3.

Not open to students who have taken former Basic Law 0622. Modern secured transactions in tangible and intangible personal property. Statutory interpretation. Professor Henson.

0668. Securities Regulation. Cr. 3.

Analysis of current problems in federal and state regulation of transactions in securities. Professor Schulman.

0669. Tax Aspects of International Investment and Employment. Cr. 3.

Prereq: B L 0671. United States taxation of non-resident aliens and foreign entities, foreign tax credit, determination of source of income, impact of tax treaties, earned income exclusion, tax effect of mode of operation and country of incorporation, and statutory and non-statutory tax devices available for international operations. Professor Schenk.

0671. Taxation. Cr. 2-6 (6 required).

Introduction to the law of federal income taxation. Basic application of these taxes; problems involved in the variety of transactions and situations which confront the lawyer in general practice; analysis and use of materials which will permit solution of these problems. Underlying problems of policy which have led to the tax law of today and which may be expected to require change in the tax law of tomorrow. Emphasis on the interrelation between income tax policy and our basic governmental and social institutions. Professors Lanning, Schenk and Tomasulo.

0672. Trusts and Decedents' Estates. Cr. 6.

Not open to students who have taken Basic Law 0689. Intestate succession, wills and trusts; requisite elements of wills and express trusts, and procedural requirements for their creation; administration of decedents' estates and trusts; special rules relating to charitable and spendthrift trusts; trust forms as equitable remedial devices under resulting and constructive trust rules. Professor Callahan.

0673. Poverty Law Litigation. Cr. 3.

Constitutional, statutory, regulatory, and procedural questions arising in poverty law litigation. Pending cases and litigation strategies in welfare, housing, consumer and other poverty law areas. Professors Houseman and Reed.

0675. Water Law. Cr. 3.

Categories of waterbodies and public and private rights therein under the riparian and the prior appropriation systems. Consumptive and non-consumptive uses, management, and protection of the resource. Intergovernmental relations with respect to water resource allocation and management. Professor Bartke.

0676. Welfare Law. Cr. 3.

Concentrated study of public-assistance and income maintenance, emphasizing recent and pending cases and the problems of work programs, eligibility conditions, food stamps, procedural rights, relationship between HEW and the state agencies, and federalization of the public assistance programs. Professor Houseman.

0681. Criminal Procedure II. Cr. 4-5.

Prereq: B L 0601 recommended. Operation of the criminal justice system from the defendant's first appearance in the court through the trial, and to post-conviction remedies, including a study of bail, the preliminary hearing, the grand jury, "voir dire," discovery, double jeopardy, joinder, and "habeas corpus." Professors Barkai and Lamborn.

0682. Land Financing. Cr. 3.

Methods of financing the acquisition and improvement of residential and commercial real estate through the use of private sources of funds. Professor Henson.

0684. A Transactional Approach to Business Planning. Cr. 6.

Prereq: B L 0630 and 0671. Examination of planning situations wherein tax, corporations, securities regulation, and accounting materials are interrelated. The organization of close corporations and public companies, corporate distributions and recapitalizations, sale of corporate businesses, corporate acquisitions and mergers, and corporate separations. Professors Schulman and Hoops.

0685. Problems in the Taxation of Corporations and Shareholders. Cr. 3.

Prereq: B L 0671. Federal income taxation of corporations and their shareholders; problems relating to the formation, operation, reorganization, and liquidation of the corporation. Problems that arise between shareholders and their closely-held corporation. Analysis and resolution of corporate tax issues. Professors Schenk and Tomasulo.

0686. Women and the Law. Cr. 3.

Laws from colonial times to the present as they relate to the status of women; family and welfare laws, criminal laws, the common law, and federal legislation. Academic and employment opportunities for women; the role of women in labor unions. Professor F. Lombard.

0688. Agency and Partnership. Cr. 3.

The relationship of principal and agent; the rights, duties, powers, and fiduciary responsibilities associated with acting for the benefit of others. The legal principles associated with conducting business in the partnership form under the Uniform Partnership Act. Professor Littlejohn.

0689. Trusts. Cr. 6.

Not open to students who have taken Basic Law 0672. Role of trusts in common family and personal situations. Express trusts and procedural requirements for their creation; powers, duties and liabilities of trustees and similar fiduciaries; judicial administration of trusts; special rules and social policies. Professor Carlin.

0690. Directed Study. Cr. 1-3.

Prereq: prior written approval of the professor directing the study and the Assistant Dean. The subject matter and the procedure guiding the study are to be arranged prior to registration.

0691. Tax Aspects of Real Estate Transactions. Cr. 3.

Prereq: BL 0671. The operation of the federal income tax as applied to real estate transactions. An intensive examination of selected areas, including the formation and liquidation of partnerships and corporations, which own real estate, as well as leases, mortgages and sales. Professor Miro.

0694. The Lawyer as Civil Practitioner. Cr. 6.

Not open to students who have taken Basic Law 0695. Pre-trial lawyering skills and decision making in civil practice — legal and non-legal. Various roles lawyers and other participants in the civil process must perform: interviewing, investigation, counseling and negotiation techniques; use of pleadings in implementing a case. Professor Stickgold.

0695. Clinical Advocacy: Civil Practice. Cr. 10.

Prereq: BL 0637 and consent of instructor. Not open to students who have taken Basic Law 0694. Students represent indigent clients in a variety of civil problems, landlord-tenant, consumer protection, welfare rights. Participation in class actions and other affirmative civil litigation designed to effect legal reform may be undertaken. Skills described in Basic Law 0694 will be considered. Students must be prepared to devote at least three full days per week to the clinic. Professor Stickgold.

0696. Advanced Evidence and Trial Practice. Cr. 6.

Prereq: BL 0637. Evidence law in the trial context, with emphasis on Michigan law. Extensive outside reading and preparation. Oral examination. Professor Childs.

0697. Federal Courts and the Federal System. Cr. 4-5.

Interrelationship of state and federal law in our legal system from the point of view of the federal courts and the Congress. Emphasis on the politics, history, and philosophy of federalism, rather than on procedures. Professor Kelman.

0698. Sales and Consumer Protection. Cr. 3.

Problems arising out of the sale of goods, including formation of the contract of sale, warranties of the seller, performance of the contract, risk of loss, and default. Professor Henson.

0699. Commercial Paper and Bank Deposits and Collections. Cr. 3.

Not open to students who have taken former Business Law 0622. The use of notes and drafts (including checks), problems involving negotiability, the operation of our system for bank deposits and collections. Professor Henson.

Seminars (SL)

Note: Some seminars may be offered as regular courses.

0600. International and Comparative Criminal Law. Cr. 5.

Criminal law and procedure of countries outside the Anglo-American tradition; the intellectual and sociological background of different systems of criminal law. Problems of international criminal law, (e.g., jurisdiction over crime, extradition, the prosecution of war criminals, and proposals for an international criminal court). Professor Wise.

0601. Criminal Justice. Cr. 5.

Organized criminal activity and corruption. Corrupt practices studied involve the political and judicial branches of government, and the police. Professor Borman.

0602. Current Constitutional Problems. Cr. 5.

Prereq: BL 0601. Each student is required to produce a substantial paper dealing with a constitutional problem of special interest to him. Class sessions involve discussion of these papers, as well as other constitutional issues of current significance. Professor Glavin.

0604. Education and the Law. Cr. 5.

Lawyer's role in influencing policies and structural decisions related to education; contributions of other disciplines, as well as traditional legal materials. Desegregation, the financing of education, decentralization, community control, labor relations, rights of pupils, the role of private schools and church-state relations in education. Professor Hain.

0605. Employment Discrimination: Law and Practice. Cr. 3-5.

Prereq: consent of instructor. Professor Prager.

0607. Housing for the Poor. Cr. 5.

The landlord-tenant aspect of the problem of adequate housing for the poor. Professor Callahan.

0608. International Law. Cr. 5.

Prereq: BL 0645. Advanced study in preparation of research papers on selected topics in international law. Professor Wise.

0610. Jurisprudence. Cr. 5.

Individual directed research and a detailed analysis of some specific jurisprudential topic. Professor Shuman.

0612. Labor Arbitration. Cr. 5.

Prereq: one course in labor law or labor problems, or consent of instructor. Development and role of arbitration in settlement of labor disputes involving grievances (rights) and new contracts (interests); arbitration in the public sector; economic criteria for wage arbitration; arbitration law; use and impact of arbitration in selected substantive areas, including race and sex discrimination; interaction of arbitration and other dispute settlement devices; procedural aspects of arbitration.

0622. Real Estate Transactions. Cr. 5.

Prereq: BL 0605 and BL 0671. Real estate transactions from the

point of view of property law, governmental controls, financing requirements, and taxation. Identification of the various participants; their economic and legal problems. Professor Bartke.

0623. Police Practices, Problems, and the Administration of Justice. Cr. 5.

Police problems and their relationship to minority groups and the public in general; handling of these problems, and the general effect on the administration of criminal justice.

0625. Psychiatry and the Law. Cr. 5.

Open only to third-year law students and psychiatric residents. Insights of psychiatry relevant to the law and the practicing lawyer. The dynamics of behavior, the theory and technique of interviewing, and forensic psychiatry issues, which include problems of mental hospitalization, personal injury, contractual and testamentary capacity, criminal law, and family law. Patients at Lafayette Clinic are presented and discussed. Professor Slovenko and Dr. Luby.

0626. Public Employment Labor Relations. Cr. 5.

Prereq. or coreq: B L 0651. The role of the law in regulating labor relations in the public sector. Content and implementation of federal, state and local legislation and executive orders. Questions of representation, management structure, the process and scope of negotiation, union security, the right to strike and picket, impasse resolution, and the political and civil rights of public employees. Professor Bartosic.

0627. Securities Regulation. Cr. 5.

Prereq: B L 0630 and 0668. Analysis of current problems in federal and state regulation of transactions in securities. Professor Schulman.

0630. Tort Principles and the Problems of Modern Society. Cr. 5.

Prereq: consent of instructor. Various problems arising through urban living and their potential resolution through application of tort concepts. Among the topics to be discussed are: the individual and big government (right of privacy); the individual and big business (products liability); the individual and the professional (malpractice); and the individual and other individuals (slumlordism, nuisance).

0631. Trial Techniques. Cr. 5.

Prereq: B L 0661. Students devote their time to the preparation and presentation of evidence on the trial court level, state and federal; to actual application of the rules of evidence; preserving all objections for a complete trial in order that an appellate court could review the entire trial. Emphasis is on demonstrative and real evidence, cross-examination of witnesses laying the foundation in order to qualify or impeach witnesses; authentication of written documents and conformity with The Best Evidence rule. Professor Childs.

0632. Urban Housing and Community Development. Cr. 3-5.

Critical examination of the legal, social, and economic aspects of urban housing and community development, including local, state and national programs and policies. Professors Hetzel and Mogk.

0634. Urban Problem Solving. Cr. 8.

Prereq: consent of instructor. A field work seminar in which teams of students examine a particular urban problem as it exists in the Detroit metropolitan area. The teams work with the various actors who are involved in the problem with the objective of developing a set of recommendations for action. Professor Hetzel.

0636. The Law of Elections and Political Organization. Cr. 5.

Laws and constitutional regulations governing voting, the nomination and election of public officials, initiative and referendum process, campaign contributions, fair election practices, political parties. Professor Kelman.

0638. Legal Treatment of Bad Luck. Cr. 5.

Government as an insurer of the general well-being; the law as a mechanism for the reduction and elimination of risk. Earthquakes, hurricanes, floods, and other "Acts of God"; war, riot, and crime injuries and liabilities; social security and unemployment insurance; health and automobile accident insurance. The plight of individuals who are without legal remedy. Professor Tierney.

0639. Secured Transactions Under the Uniform Commercial Code. Cr. 5.

Prereq: B L 0667. Special problems in secured transactions. Professor Henson.

0640. Criminal and Quasi-Criminal Law and Procedure. Cr. 5.

Substantive and procedural issues in criminal prosecutions, civil commitments, deportations, forfeitures, expulsions, and license deprivations. Professor Lamborn.

0641. Labor Law. Cr. 5.

Prereq. or coreq: B L 0651. Current labor law problems with emphasis on labor relations in the public sector, employment discrimination, internal union affairs, and myths and assumptions in labor law (the role of empirical research). Professor Bartosic.

0643. International Transactions. Cr. 5.

Prereq: B L 0623 or 0624 recommended. Problems presented by business transactions which cross national boundaries, including the conflict of regulatory laws. An introduction to transnational law and institutions. Professor Juenger.

0644. International Problems of Criminal Law. Cr. 5.

Prereq: B L 0603; B L 0645 recommended. Open only to third year and graduate law students. Jurisdiction, extraterritorial effect of penal judgments, extradition, international cooperation in criminal matters, international standards of due process, jurisdiction over servicemen in foreign countries, crimes against international law, war crimes trials, the Eichman Case, proposals for an international criminal court, and implications for the Vietnam conflict. Professor George.

0645. Prisoners' Rights. Cr. 5.

Prereq: consent of instructor. Current state of the law regarding the rights and limitations of those persons incarcerated for crimes and those awaiting trial in jail. Students assist individual prisoners, work on affirmative law suits, and develop materials and briefs for jailhouse lawyers and others.

0647. Law and the Behavioral Sciences: A Research Seminar. Cr. 2-5 (5 required).

Students cooperate in the design of one or several research projects involving methodologies and problems of the behavioral sciences when applied to socio-legal problems. Professor Shuman.

0648. The Individual and the Union. Cr. 5.

Prereq. or coreq: B L 0651. Legal bases for judicial intervention in internal union affairs, compulsory unionism, the right to admission and fair representation, civil liberties of members, disciplinary proceedings, financial administration, election of officers, trusteeships, racketeering, and political activities. Professor Bartosic.

0649. Freedom of Speech. Cr. 5.

Prereq: B L 0626. Reading classics pertaining to free speech (Zechariah Chafee, Alexander Meiklejohn, others). Mock appellate arguments of pending and/or simulated Free Speech cases. Each student will be required to deliver one oral argument and prepare one brief and one short judicial opinion. Professor Friedman.

0650. Scientific Experimentation on Humans. Cr. 5.

Questions such as when does a therapeutic intervention become experimentation, and how can and should medical experimentation be limited (legally and otherwise). Conventional topics such as hospital consents considered. Professor F. Lombard.

0651. Clinic in Employment Discrimination Law. Cr. 6-12 (12 required).

Prereq: consent of instructor. Must be taken as a one-year course. Law and practice of employment discrimination litigation. Course work on the substantive law; clinical work on class action and individual cases in various stages of administrative proceedings; trial and appellate court litigation. Techniques of investigating and evaluating charges of discrimination; drafting complaints; discovery; trial preparation; trial work; brief writing; and appellate work. Participants will devote the equivalent of two full days each week to clinic work. Professor Prager.

0652. Environmental Law. Cr. 5

The environmental crisis in terms of economic and other social decisions processes. General ecology population, noise, economic approaches, aesthetics, transportation, basic decision making, power and energy, bureaucracy, air pollution, the role and problems of environmental litigation, land use, metropolitan and regional issues, technology and federalism. Professor Lanning.

0653. Tax Reform. Cr. 5.

Prereq: B L 0671. A study of the tax reform hearings of 1973. Testimony of the eleven panels of experts. Fairness, cost-effectiveness, and administrative practicality of the various approaches suggested by these experts. Substitution of taxable subsidies, other non-tax benefits for tax incentives, and current administration proposals. Professor Tomasulo.

0654. American Legal History. Cr. 5.

Selected problems. Professor Glennon.

0655. Local Government Law. Cr. 5.

Legal, economic and other factors which affect the exercise of power by units of local government. Impact of revenue sharing and other federal programs on local government; local government and the passage of criminal and environmental legislation. Professor Lax.

0656. Advance Topics in the Legal Regulation of Competition. Cr. 5.

Prereq: B L 0617, or B L 0628 or B L 0665. Each student is required to prepare an in-depth paper on a topic of interest to him relating to subject matter covered by courses Basic Law 0617, 0628, or 0665. Class discussions will revolve around the topics covered by these papers. Professor Adelman.

Graduate Law (GL)

The following courses are primarily for graduate students, open to undergraduates only by special permission. In addition, graduate students may elect selected undergraduate law courses and seminars approved by their adviser. Permission may also be secured to take for credit related graduate level courses in economics, business administration and similar areas.

Labor Law

Labor Law majors who have not had a basic labor law course in their undergraduate law program will normally be required to take Basic Law 0651 before undertaking regular graduate labor law courses. Graduate credit may be earned for this course.

0801. Arbitration of Labor Disputes. Cr. 3-6 (6 required).

Prereq: consent of adviser. Study of labor arbitration, including grievance and interest arbitrations. Practice, policy questions and the impact of statutes.

0802. The Collective Bargaining Agreement. Cr. 3-6.

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.

0809. Unemployment Compensation Law. Cr. 3.

Prereq: consent of adviser. Unemployment compensation law and practice, based on the Michigan statute, including federal relationships and a comparison with other state statutes.

0810. Wage and Hour Laws. Cr. 3.

State and federal wage and hour laws, including administration of the statutes and their interrelationship.

0811. Workmen's Compensation Law. Cr. 3-6 (6 required).

Prereq: consent of adviser. Study of workmen's compensation law and practice, based on the Michigan statute, including a comparison with other state statutes.

0812. Practices and Procedures Before the National Labor Relations Board. Cr. 3.

The representational and unfair labor practice areas.

Tax Law

Tax Law majors who have not had a reasonably current income tax course in their undergraduate law work may be required to take Basic Law 0671 prior to entering the graduate tax courses. They may earn graduate credit for this course.

0827. Executive Compensation Plans. Cr. 3.

Prereq: consent of adviser.

0828. Federal Income Taxation of Partnerships and Subchapter S Corporations. Cr. 3.

All aspects of transfer of property to partnership and subchapter S corporations; problems in connection with operations, and distribution of property and transfers of interest in partnership and subchapter S corporations.

0830. Federal Tax Practice. Cr. 3.

Prereq: consent of adviser. Procedure, both administrative and judicial, involved in the conduct of federal tax controversies.

0831. Income Taxation of Estates and Trusts. Cr. 3.

Prereq: consent of adviser. Rules of federal income taxation applicable to trusts and estates. Selected estate tax problems under existing tax treatment and with a view to considering possible changes in this area of the tax law.

0832. State and Local Taxes. Cr. 3-6 (6 required).

Prereq: consent of adviser. The basic tax laws of state and local government, particularly property and excise taxes.

0834. Advanced Problems in Federal Income Taxation of Corporations and Shareholders. Cr. 3-6 (6 required).

Prereq: BL 0683 or 0685 within previous three years, or consent of instructor. Assigned problems. Stock redemptions; liquidations; reorganizations; stock dividends; dividends payable in cash and other property; accumulated earnings tax.

0835. Tax Fraud. Cr. 3.

Prereq: BL 0671. Federal civil and criminal remedies for fraudulent tax evasion.

Other Graduate Courses

0890. Directed Study in Law. Cr. 1-5.

Prereq: consent of adviser.

0899. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser

Medical Jurisprudence

For students holding an M.D. degree, see page 168 for details.

Corporate and Finance Law

Students majoring in corporate and finance law may elect tax or labor courses.

Law School Directory

Admissions

Juris Doctor231 Law School; telephone: 577-3937

Advanced Degree395 Law School; telephone: 577-3930

Registration and General

Information311 Law School; telephone: 577-3930

Employment Office (Law

positions only)165 Law School Annex;
telephone: 577-3967

Mailing address for all Law School offices:

Law School, Wayne State University, 468 W. Ferry,
Detroit, Michigan 48202



College of Liberal Arts

Foreword

The College of Liberal Arts of Wayne State University offers students several unique educational opportunities.

Its location, near the center of one of the great metropolitan areas of the United States, makes it possible for students to participate in the many cultural and social activities of the city. This opportunity for student participation in the vast technical, social, and artistic ferment that so characterizes the modern world adds an operational dimension to the basic structure of their education.

The College of Liberal Arts at Wayne State University extends beyond the traditional liberal arts concept, interacting as it does with all elements of the University community. For example, superimposed on a quality undergraduate program are graduate programs leading to the master's and doctor's degrees in the various disciplines. In turn, these graduate programs offer more than opportunities for advanced study since they contribute directly to the total program of the College and thus enhance the quality of the undergraduate experience. Accordingly, professors teach both graduates and undergraduates; research projects involve both graduates and undergraduates. Some specialized classes are available to both graduates and undergraduates of the upper division, and this opportunity for informal association with graduate students and research personnel enriches the experiences of the undergraduate. Advanced and undergraduate studies within the College are interrelated so as to contribute to the education of students with specific professional interests as well as to the academic growth of those desiring a more general education.

The College program for the Bachelor of Arts degree is designed to lead to a broadening of intellectual horizons. The Liberal Arts College stimulates knowledge and understanding in the various areas of learning common to all human activity and gives the student freedom to select among diverse courses and programs as he matures intellectually. The College helps to develop in earlier studies the independence, resourcefulness, and judgment of the student so he subsequently may select with confidence advanced courses of study towards a career. The student should be educated in breadth, prepared for the changing circumstances of the future and imbued with the realization that his education is never completed, despite advanced training in a specialized field.

The College of Liberal Arts offers an extensive curriculum in the many areas of subject matter usually available only in a large university. For the student whose academic interests extend over several departments, the College curriculum has the necessary flexibility to meet his needs. Structural combinations, for example, those between psychology and sociology, biology and psychology, economics and mathematics, and others are available to students, as well as interdisciplinary programs such as American Studies, International Studies, Urban Studies, Social Science, and Physical Science. This interdisciplinary approach is also emphasized in the Honors Program available to selected superior students in the College.

Since many students graduating from college today will probably enter fields which are undergoing radical changes, a major goal of the liberal arts program must be to stimulate in each student resourcefulness, an understanding of change, and a respect for learning. The College attempts to familiarize its students with a variety of disciplines and to train them to cope with problems in a broad spectrum of fields. The curriculum is designed to enable students to have an understanding of areas other than their own and to be able to communicate with individuals in different disciplines.

The distinguished faculty of the College, representing a great diversity of backgrounds and interests, is engaged not only in teaching, but in research and creative activities. In classes ranging in size from large lectures to discussion groups the student finds a variety of ways of being involved in the activities of the classroom.

In summary, the College of Liberal Arts of Wayne State University offers students, in addition to a quality undergraduate program, a flexible curriculum, the opportunity to interact constructively with the many facets of a major university, the stimulation of exposure to, and participation in, the frontier areas of diverse disciplines, and the opportunity to engage in the cultural and social activities of a great metropolitan area.



ACADEMIC REGULATIONS

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 6. The following additions and amendments apply to the College of Liberal Arts.

RECOMMENDED HIGH SCHOOL PREPARATION

Students who plan to enter the College of Liberal Arts as freshmen should have included in their high school programs at least three years of English, one year of algebra, one year of plane geometry, at least one course in a laboratory science, and at least two years of a foreign language. Some college programs require additional work in mathematics and science.

NORMAL PROGRAM LOAD

The requirements for graduation are based upon an average program of fifteen credits a quarter for twelve quarters, but the normal load shall not exceed eighteen credits.

Because two hours of outside preparation are normally expected for each class hour in each course, a fifteen credit program calls for approximately forty-five hours of work a week. Students who undertake such a program should expect to give it their full time and energy. A few hours of employment a week may be safely added to this program by a capable student.

EXTRA CREDITS

Extra credits are any credits taken (auditing excepted) in excess of the normal load of eighteen credits. A student with a 3.0 honor point average may take more than eighteen credits only when his program has been approved by his adviser and the Dean.

RESTRICTIONS ON CREDIT

The College imposes the following three restrictions on credit:

Maximum Credits in One Subject — A student may not count credit toward a degree more than sixty-eight credits in courses in any one subject except in special curricula in which additional courses are specified in the curriculum outline.

Out-of-Time Credits — A student attempting to complete a program after a protracted interruption in his education, or on a part-time basis over an extended period of time, may find some of the early course work is out-of-date. In such cases the department may require him to take refresher work or to otherwise demonstrate his preparation for advanced courses in the department.

Restricted Courses — Degree credit is not given for elections in restricted courses which exceed the approved limit specified below.

Professional Courses

A maximum of twenty-four credits may be elected by any student from courses offered for degree credit by the several professional schools and colleges within the University. Twelve of these credits may be elected with the approval of a Liberal Arts adviser prior to the election of a major, and twelve additional credits may be chosen with the approval of the major department. If the student's curriculum specifically requires professional courses in excess of the maximum, additional credits may be elected.

Specialized Courses

Unless a curriculum specifies otherwise, the maximum amount of degree credit which may be earned in certain specialized areas is limited as follows:

Areas	maximum degree credit
Family and Consumer Resources	23
Hygiene	12
Physical Education and Dance (approved courses)	6
Applied Music (including the limitation stated in the paragraph below)	24

A total of not more than six credits from the following list of courses may be counted toward a degree unless a curriculum specifically requires more extensive elections:

Music 0280	University Band
Music 0281	University Symphony Orchestra
Music 0283	Men's Glee Club
Music 0284	University Choruses
Music 0285	Chamber Singers
Music 0287	Women's Chorale
Music 0288	Chamber Music and Special Ensembles
Speech 0224	Practicum in Forensics
Speech 0275	Radio, Television, Film Laboratory

Restrictions on Transfer Credit — No more than ninety-six credits (sixty-four semester credits) may be transferred from two-year colleges; moreover, once any student has earned ninety-six credits (sixty-four semester credits) toward his degree, he may not receive credit for work taken at a two-year college.

PROBATION

If a student's work averages below 2.0, he will be placed on probation. If he incurs a serious honor point deficiency, he may be required to obtain permission from the Office of the Dean before registering. Such permission will be granted only after an interview with the student and some assurance from him that the previous causes of failure will not be operative in the proposed program.

Restriction — While on probation, a student may not represent the College in student activities.

Removal of Probation—A student will be removed from probation at the end of any quarter in which he achieves an over-all average of C or better for all the degree work he has taken in the College.

EXCLUSION

If a student on probation incurs an additional serious deficiency or if he fails to raise his honor point average within a reasonable length of time, he may be excluded from the College. Such an exclusion will be reviewed by the Probation Committee and the Dean upon the request of the student. After one year of exclusion, the student may apply for readmission to the College. The decision to readmit the student will be based upon evidence presented by the student that circumstances have changed during the year and that his probability of success has increased.

Cheating and Plagiarism—The principle of honesty is recognized as fundamental to a scholarly community. Students are expected to honor this principle and instructors are expected to take appropriate action when instances of academic dishonesty are discovered. An instructor may, when he discovers such instances, give a failing grade on the assignment or for the course. Serious acts of dishonesty may lead to suspension or exclusion.

The instructor has the responsibility of notifying the student of the alleged violation and the action being taken. Both the student and the instructor are entitled to academic due process in all such cases. Information on procedures is available in the College offices.

ATTENDANCE

Regularity in attendance and performance is necessary for success in college work. Each instructor at the beginning of the course will announce his attendance requirements.

RETENTION OF RECORDS

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

STUDY ABROAD

For almost two decades, the University has provided its students with the opportunity to study abroad for a year and fully experience the cultural, academic, and social life in a foreign country. Students in good academic standing may, with the approval of their major departments, take their junior year's work in Germany under the Junior Year in

Munich or Freiburg Program. Six quarters of college German or the equivalent are prerequisite. Participants will earn credit for one academic year (September through July) as fully enrolled (matriculated) students at the cooperating Universities of Munich or Freiburg. Interested students should contact the Junior Year offices at 202 Mackenzie Hall or phone 577-4605.

HONORS

The Honors Program of the College of Liberal Arts is dedicated to the belief that the superior student needs opportunities for intellectual achievement which normally are not found in a traditional classroom situation. The lower division of the Honors Program consists of special honors sections in freshman and sophomore courses and a sophomore colloquium which is taken at the end of the sophomore year. Upon the successful completion of the lower division work, the student is eligible to enter the upper division which is composed of a departmental honors program and a general college honors program. The departmental honors programs vary from department to department, but they all include independent study or research, a senior honors essay, and one interdisciplinary seminar offered by the Honors Program. The general college honors program is composed of at least three interdisciplinary seminars and a senior honors essay. The honors student may enter either a departmental honors program or the general college honors program, or both. Upon graduation, the student's diploma indicates that he graduated "with honors" in a department or in the general college program, or both.

Other features of the Honors Program include special advising, the waiving of certain prerequisites, guest lecturers, a study lounge, and an opportunity to participate in the Honors Action Association, an advisory student group.

Students who are interested in the Liberal Arts Honors Program should contact Dr. Jacob E. Nyenhuis, the director of the program; Mr. Brad Iverson, the assistant director; or Mr. Norman J. Kopmeyer, the Honors adviser; at 577-3030. The Honors Program offices are located at 16.1 Library Court, 691 Merrick Avenue. For information on courses see page 283.

GRADUATION WITH DISTINCTION

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

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

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

For combined degree candidates who have taken the first credits in residence, the honor point average required for distinction is 3.3; for high distinction, 3.6.

For candidates who have less than ninety credits in residence and whose records indicate that the application of the foregoing criteria would be unjust, the Education Adjustment Committee will make recommendations on the granting of distinction and high distinction.

PHI BETA KAPPA

Phi Beta Kappa, the oldest scholarship honor society in this country, dating from December 5, 1776, installed its one hundred and fifty-sixth chapter, Michigan Gamma, at Wayne State University on January 16, 1953, under a charter granted to the College of Liberal Arts of the University. Membership in the chapter is restricted to its charter members and to those members of the junior and senior classes of the College of Liberal Arts who have been elected to membership by the chapter and who have formally accepted election and participated in the initiation ceremonies of this or some other cooperating chapter. In addition, all members of the University staff who have been elected to membership by another chapter of Phi Beta Kappa automatically become affiliated members of the local chapter for the duration of their stay in the University.

Election to membership is restricted to students with at least two academic years of residence in the College of Liberal Arts of Wayne State University, and is based not only on high scholarship and integrity, but also on breadth and depth of program. Students who wish further information are urged to consult with the secretary of the chapter concerning the requirements.

BACHELOR'S DEGREE REQUIREMENTS

The College of Liberal Arts grants the following undergraduate degrees:

- Bachelor of Arts
- Bachelor of Science
- Bachelor of Fine Arts
- Bachelor of Music
- Bachelor of Science in Biology
- Bachelor of Science in Chemistry
- Bachelor of Science in Computer Science
- Bachelor of Science in Family and Consumer Resources
- Bachelor of Science in Physics
- Bachelor of Science in Law Enforcement

SCHOLASTIC APTITUDE TEST REQUIREMENT

To help better to advise students, the College requires all students, whether freshmen or transfers from other institutions, to take the *College Entrance Examination Board*

Scholastic Aptitude Test (SAT). If the student has not taken the SAT prior to admission, he must take the test during the first quarter in which he is registered.

ACADEMIC ADVISING

Freshmen and sophomores are required to consult advisers each time they register. A staff of academic advisers is available in the Liberal Arts Advising Office, second floor, Mackenzie Hall. Students should consult with advisers on all questions concerning degree requirements, academic regulations, course elections, and programs of study, and if they are having difficulties in their academic work. A student is not assigned to a specific adviser but may consult with one of his choice or with any adviser available. Freshmen and sophomores in some of the special curricula are required to consult departmental advisers or advisers in other colleges. The current *Schedule of Classes* names the advisers to be consulted.

Juniors and seniors are assigned advisers in their major departments, and their course elections in the last two years are arranged in consultation with these departmental advisers.

DEGREE CREDIT

A candidate for a Bachelor of Arts, Bachelor of Science, or any special degree must complete at least 180 degree credits of which a minimum of forty-five credits must be taken in residence in the College. Variations above this minimum depend on the requirements of each curriculum. (Degree credit is not given in restricted courses which exceed the approved limit. See "Restrictions on Credit," page 187.)

Combined Degree — A combined degree (B.A. or B.S.) is granted by the College of Liberal Arts in cooperation with approved schools of Dentistry, Medicine, and Law, which do not require a bachelor's degree for admission. A candidate for a combined degree must complete 135 credits in the College of Liberal Arts and all college requirements. In addition, he must complete satisfactorily the first year's work in an approved professional school. A student who fails to pass any course ordinarily required during the first year of professional work forfeits the right to a combined degree. Such cases may be reopened only after the student completes the second year of professional work. Since the Wayne State University College of Law now requires an undergraduate degree for admission, the combined degree with this college is not available.

Second Degree — A student who has received a recognized Liberal Arts degree from Wayne State University or any other accredited institution may obtain a second bachelor's degree in another academic area by registering in the undergraduate College. A graduate of Wayne State University, if his degree is from Liberal Arts, may be ranked as an undergraduate by declaring a new major and indicating his desire to earn a second undergraduate degree. Other Wayne State University graduates must obtain a transfer of college to Liberal Arts. A student from another institution must be admitted to the College by the University Admissions Office.

In order to be granted a second degree, the student must complete a minimum of forty-five credits beyond the first degree in the College and satisfy all College and major requirements. No second degree will be granted in the academic area in which the first degree was earned.

APPLICATION FOR DEGREE

See General University Information, p. 15.

HONOR POINT AVERAGE

All students are required to maintain an over-all average of C (2.0 honor point average) for all degree work elected. See "Honor Point Average" in the General University Information section of this bulletin, page 14.

GROUP REQUIREMENTS

The group requirements are designed to introduce the student to a broad general education. Students should understand that satisfaction of the group requirements described below guarantees only a minimal acquaintance with the Liberal Arts disciplines represented. These requirements should be fulfilled principally in the first two years in college in order that the courses may serve as background for the major studies.

Students in the College of Liberal Arts must fulfill the following group requirements before their degrees will be granted.* A student may not use the same course to satisfy more than one of the group requirements.

Group One — English

Students must complete satisfactorily at least two courses (normally eight credits) in English. English 0150, Freshman Literature and Composition or its equivalent, must be taken by all students. Only after completing English 0150 or its equivalent and reaching the third quarter of the freshman year may students elect an 0200-level English course to satisfy the remainder of the group requirements. Any 0200-level English course is acceptable.

Those students whose scores on the English Placement Examination indicate need for instruction and practice in composition should elect English 0130, Composition Seminar, before they take English 0150.

Group Two — Foreign Language

Students must complete satisfactorily the study of one of the foreign languages through the level of the fourth course offered, normally fifteen to eighteen credits. Those 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, usually on the basis of a placement test. The group requirement will be considered satisfied for those students whose test scores place them beyond the fourth level. For specific procedures, see the listing of the various foreign language departments in this bulletin.

Listed below are the languages which are regularly offered and which will meet the foreign language requirement:

Arabic, see p. 313.	Latin, see p. 272.
Armenian, see p. 354.	Polish, see p. 355.
French, see p. 345.	Russian, see p. 355.
German, see p. 346.	Spanish, see p. 349.
Greek, see p. 272.	Swahili, see p. 207.
Hebrew, see p. 314.	Ukrainian, see p. 356.
Italian, see p. 348.	

Bilingual Students — The language requirement will be considered satisfied for the student who was born in and completed his secondary education in a country whose language is not English. However, no credit will be granted for elementary or intermediate courses in that language either through class work or by special examination.

Exceptions — Prospective candidates for the degree of Bachelor of Science should consult the major adviser or this bulletin for the language requirement for the degree. A foreign language should be elected and probably pursued beyond the fourth level course by students who intend to continue in graduate studies or to enter a professional school which requires foreign language.

Group Three — Natural Science

The student must complete satisfactorily four courses (normally sixteen credits) in the natural sciences, distributed as follows:

1. At least one course in the physical sciences.
2. At least one course in the biological sciences.
3. At least one of the four courses must be a laboratory course.
4. At least two of the four courses must be elected in one department.

The physical science requirement can be fulfilled by course in the Departments of Chemistry, Geology, Physics and Astronomy; and Physical Science 0191, 0192, and 0193. A two courses from Physical Science 0191, 0192, or 0193 fulfill the requirement of two courses taken in one department but they will not fulfill the laboratory requirement. In Psychology Department, only Psychology 0305 or 0307 satisfy the laboratory requirement. One mathematics course numbered 0179 or higher or one computer science course numbered 0200 or higher may be substituted for a science course. It may not be used toward the fulfillment of the requirement of two courses in one department.

*The designation of specific courses to fulfill the different group requirements is under continuing study and will appear in a later bulletin.

Group Four — Social Science

Students must complete satisfactorily four courses (normally sixteen credits) in the social sciences. Courses in at least two of the following departments must be elected to satisfy this requirement: Anthropology, Economics, Geography, History, Philosophy, Political Science, and Sociology. Social Science 0191-0192 may also be used for partial fulfillment of this requirement.

Group Five — Humanities

Students must complete satisfactorily four courses (normally sixteen credits) in the humanities. Two courses must be taken in one department but no more than two courses in any one department may be applied toward fulfillment of the requirement. Courses which will satisfy this requirement are listed under the following departments: American Studies; Art and Art History; Classics; English; Humanities; Music; Speech Communication and Theatre; and any foreign language department (Greek and Latin, Near Eastern, Romance and Germanic, and Slavic).^{*} However, not all courses in these departments may be counted toward fulfillment of the requirement. Courses in applied arts such as studio art, music theory and applied music, English composition, and applied speech techniques are not acceptable. Students should consult an adviser before registering for any course to be certain that it will earn credit toward fulfillment of the group requirement.

University Requirement in American Government

See General University Information, p. 11.

CURRICULUM REQUIREMENTS

A curriculum usually designates the student's general area of interest or his eventual professional choice. By choosing the General Curriculum, however, the student indicates only that he intends to take a degree in one of the departments of the College or that he has not yet made a decision about his final goal. Since educational interests may change during the course of the student's college career, he may change his curriculum at any time by consulting an adviser.

Some of the curricula outline a specific program of study to guide the student. Others are governed only by the group requirements and the future major requirements and recommendations. The student should consult this bulletin for the requirements in his curriculum and should discuss his progress with his academic or major adviser. See the Undergraduate Curricula section below.

^{*} Courses presenting foreign literature in English translation in the languages departments, see the specific departments.

MAJOR REQUIREMENTS

A major is a program of concentrated study in a department or area within the College. The specific course requirements for majors are listed in this bulletin under each of the departments or areas of the College. The student is expected to select an area of concentration during his sophomore year and to declare his major in the subject or field of his choice by the beginning of his junior year.

To declare a major, the student should consult the chairman of the department or area selected, or his designated representative, well in advance of his formal declaration, since the acceptance of the declaration of major is subject to the advice of the department concerned. An up-to-date cumulative record of the student's work should be obtained by the student from the Records Office and delivered to the department for its files. At the time of his formal declaration, the student must obtain the signature of the department chairman or his designated representative on the major declaration form and file the form in the Liberal Arts Advising Office. All courses elected or changed by the student after he declares a major must be approved by his departmental adviser.

The major must include at least thirty credits in one subject, exclusive of the introductory courses and inclusive of some advanced work. No more than sixty-eight credits in the major subject (including introductory courses) may be counted toward a degree.

Since the credit requirement in the major subject may vary within the above limits and since the major program may require specific courses in related areas as well as in the major subject, the student should refer to the Undergraduate Curricula section for the requirements of the major in which he is interested.

For an interdepartmental or field major, the rule regarding minimum credits required in one subject is waived.

For majors which require intensive study in a particular subject, more than sixty-eight credits are allowed.

If a student wishes to declare a double major, he must obtain the approval of the chairman or delegated representatives of each of the departments in which he wishes to major. If he has already declared one major, he must still obtain the signatures from both departments when he declares his second major. His program authorizations must be signed, each time he registers, by an adviser in each major department. In order to graduate with a double major, he must fulfill the major requirements in both areas of concentration.

The student must complete all courses in his major with an over-all average of C (2.0 honor point average).

Combined Degree — A candidate for a combined degree is required to make reasonable progress toward the completion of a major. The major department decides which courses constitute reasonable progress. Upon completion of the specified courses, the department certifies that the major requirements have been met.

MAJORS AVAILABLE

Leading to a Bachelor of Arts Degree

American Studies	Humanities
Anthropology	International Studies
Anthropology & Sociology	Co-Major Program
Arabic	Italian
Art	Journalism
Art History	Latin
Biology	Mathematics
Black Studies	Music
Co-Major Program	Near Eastern Languages
Chemistry	Near Eastern Studies
Classical Civilization	Philosophy
Classics	Physics
Computer Science	Polish
(as a second major)	Political Science
Economics	Psychology
English	Radio, Television and Film
Family and	Russian
Consumer Resources	Slavic Languages
French	and Literatures
Geography	Sociology
Geology	Spanish
German	Speech
Greek	Urban Studies
Hebrew	Co-Major Program
History	

Leading to a Bachelor of Science Degree

Computer Science (as a second major)	
Geology	Psychology
Mathematics	Unified Science

Leading to a Special Degree

Art— <i>Bachelor of Fine Arts</i>
Biology— <i>Bachelor of Science in Biology</i>
Chemistry— <i>Bachelor of Science in Chemistry</i>
Computer Science— <i>Bachelor of Science in Computer Science</i>
Family and Consumer Resources— <i>Bachelor of Science in Family and Consumer Resources</i>
Law Enforcement— <i>Bachelor of Science in Law Enforcement</i>
Music— <i>Bachelor of Music</i>
Physics— <i>Bachelor of Science in Physics</i>
Speech— <i>Bachelor of Fine Arts</i>

PROFICIENCY EXAMINATION IN COMPOSITION

Each student must pass the English Proficiency Examination in Composition before he graduates. He is notified of this requirement upon completion of sixty credits and he should plan to write the essay examination at the testing session following his notification. Exact times and locations are listed in the *Schedule of Classes* under Department of English. The College and departments are notified when any student fails the examination. The failing student should contact the Composition Clinic where he can receive individual instruction in

English. When he passes the English Proficiency Examination, the College is notified that he has met the graduation requirement.

ADVANCED COURSES

At least twenty-two credits in courses numbered 0300 or above **must** be earned.

Combined Degrees — Courses taken in the first year of professional school may be applied toward the required twenty-two credits in advanced courses.

RESIDENCE

The last forty-five credits applicable to the degree, not including credit by special examination, must be completed in an undergraduate college or school of Wayne State University. Credit by special examination, if taken during a quarter in which the student is registered, will not be considered an interruption of residence.

For the combined degree, the residence requirement must be completed in the College of Liberal Arts at Wayne State University prior to admission to the professional school.

SCIENCE REQUIREMENT FOR B.S. DEGREE

A Bachelor of Science degree requires a minimum of ninety credits in natural sciences and mathematics. The sixteen credits which a student completes to fulfill the Natural Science Group Requirement are included in the ninety credits.

Combined Degrees — Students who are candidates for the Bachelor of Science on a combined degree must complete the required ninety credits, but the conditions vary as follows: pre-dental and pre-medical students must complete a minimum of sixty credits and pre-law students must complete ninety credits in natural sciences and mathematics before entering the professional school.

Special Degrees — Students who are candidates for the degrees of Bachelor of Science in Biology, Bachelor of Science in Chemistry, or Bachelor of Science in Physics must fulfill the ninety-credit requirement in natural sciences and mathematics. Candidates for the other special degrees must complete the Natural Science Group Requirement and any additional natural science and mathematics courses required by the curriculum.

UNDERGRADUATE CURRICULA

Students who are uncertain of the procedure in curricular planning should confer with an adviser. In all curricula, the major is declared at the beginning of the junior year.

BASIC CURRICULA

General Curriculum

The General Curriculum leads to the degree of Bachelor of Arts or Bachelor of Science. Although it is designed for students who plan to elect a major in a department or area which does not require a special curriculum, it is an ideal choice for entering freshmen who have not decided on their plans of study.

In this curriculum a wide choice of courses in the arts and sciences is permitted. The elections suggested below for the first two years are planned to fulfill the Group Requirements, but the student may vary these elections with the consent of the academic adviser. The courses in the last two years are arranged in consultation with a major adviser.

Suggested Elections:

First Year		<i>credits</i>
English	4-8	
Foreign Language	4-12	
Humanities	4-12	
Natural Science	4-12	
Social Science	4-12	
Electives	0-8	

Second Year		<i>credits</i>
English	0-4	
Foreign Language	4-12	
Humanities	4-12	
Natural Science	4-12	
Social Science	4-12	
Electives	0-12	

Curriculum in Unified Science

The Curriculum in Unified Science is designed to give the student a comprehensive and integrated education in the sciences and mathematics leading to a Bachelor of Science degree. Its purpose is to provide a broad background rather than highly specialized training in a particular science. Students who plan to do graduate study in science, to enroll in professional schools in which training in science is requisite, or to teach science should consider this curriculum.

The curriculum requires 180 credits, including a minimum of ninety credits in the sciences and mathematics and the College Group Requirements. Seventy-eight of the ninety credits must

be earned in five of the Departments of Biology, Chemistry, Geology, Mathematics, Physics and Astronomy, and Psychology. Thirty of the credits must be in a single department and at least twelve credits in each of four others. The student must also complete Mathematics 0211 or the equivalent. Elections in the junior and senior years are approved by the adviser in the department of greatest concentration.

Certain restrictions in choice are imposed in order to accomplish the objective of the curriculum. These include:

1. Courses that are offered specifically for non-science majors will not be accepted in fulfillment of either the thirty- or twelve-credit requirements. These courses include Physical Science 0191, 0192, and 0193.
2. Credit in Mathematics 0300 and in mathematics courses numbered below Mathematics 0211 may not be counted, with the exception of Mathematics 0180 or the equivalent, for which three credits will be allowed.
3. Students who choose a thirty-credit concentration in mathematics must include the basic sequence as listed in the Mathematics section of this bulletin.

The following is a recommended two-year program. For foreign language elections, the student should choose a modern language which has a substantial literature in scientific research. In mathematics or sciences, the student should choose courses which complement his field of major concentration (thirty credits) and the four fields of lesser concentration (twelve credits).

First Year		<i>credits</i>
English	8	
Foreign Language	4-12	
Humanities	4-12	
Mathematics or Natural Science	12-20	
Social Sciences	12	

Second Year		<i>credits</i>
Foreign Language	0-12	
Humanities	4-12	
Mathematics or Natural Science	16-24	
Social Science	4	
Electives	5	

PREPROFESSIONAL CURRICULA

Admission to a preprofessional curriculum implies only that a student has selected a professional goal. It does not necessarily mean that the student will be accepted by the corresponding professional college of his choice.

Pre-Anesthesia for Nurses

The College of Pharmacy and Allied Health Professions offers a baccalaureate degree in anesthesia for nurses with a preprofessional program taken in the College of Liberal Arts. Admission is open to registered nurses who have met the admission requirements for the College.

The following courses are taken in the College prior to admission to the professional program.

	<i>credits</i>
Biology 0103	5
Chemistry 0102, 0103, 0104	12
English 0150 and one 0200 level course	8
Political Science 0101	4
Psychology 0198, 0340	8
Social Science Electives	8
Sociology 0201	4
Speech 0200	4
Humanities Electives	8

Thirty credits may be earned by taking an examination in medical-surgical nursing.

Pre-Business Administration

— see page 35.

Pre-Dentistry

The academic requirements for admission to most schools of dentistry are as follows:

	<i>credits</i>
English	12
Biology or Zoology with laboratory	12
Chemistry: Inorganic with laboratory	12
Chemistry: Organic with laboratory	12
Physics with laboratory	12

Students should consult a copy of *Admission Requirements of American Dental Schools*, available for use in the Liberal Arts Advising Office, for the specific requirements of the schools of their choice and for suggested electives. Although two years of Liberal Arts courses (ninety credits) is the stated minimum requirement for admission to most dental schools, the majority of students who enter have earned a baccalaureate degree.

Students who are interested in a combined degree with the College of Liberal Arts should refer to page 189 for modification of the regular requirements for degrees.

Pre-Education

— See page 196.

Pre-Law

Since the requirements for admission to law schools vary from school to school, the student should familiarize himself with the requirements of the school he plans to enter.

For admission to Wayne State Law School, the applicant should have a bachelors' degree from an accredited college with a strong grade point average. Although no specific courses are required, the faculty of the Law School recommends a strong background in English, with emphasis on grammar and composition, and in the social sciences. Within

these fields, the choice of courses should be made in consultation with one of the academic advisers of the College of Liberal Arts. A suggested list of courses is as follows: Economics 0101, 0102, 0508; five courses in English; History 0201, 0202, 0203, 0516, 0517, 0553, 0554; Philosophy 0201, 0220; Political Science 0101, 0281, 0513, 0540, 0541; Psychology 0198; Sociology 0201, 0540. An introductory course in accounting is also recommended.

For students interested in the practice of law in commercial, corporate, and tax fields, the business administration curriculum may provide a good background.

Law School Admission Test — Each applicant for admission is required to take the Law School Admission Test given by the Educational Testing Service, Princeton, New Jersey. This test is given five times a year in Detroit and at one hundred or more examination centers located throughout the country. The fee for this test is \$14.00. Application blanks and additional information may be obtained from the Educational Testing Service, Princeton, New Jersey.

Pre-Library Science

Positions in public, special, college and university libraries call for a broad undergraduate education.¹ A major in almost any department in the College of Liberal Arts, with the exception of studio art, applied music, or family and consumer resources would serve as suitable background for a student contemplating librarianship as a career.

It is recommended that the student elect Library Science 5497 (Introduction to Librarianship), Library Science 5495 (General Reference Service), and Library Science 6494 (Technical Services in Libraries). Library Science courses are open only to juniors and seniors, and credit for these courses is cognate to or supporting the major and may be authorized by the chairman of the major department.

Preparation for professional positions in libraries consists of a graduate course of study which leads to the degree Master of Science in Library Science. The program is offered by the Library Science Department, College of Education. Further information may be obtained from that department.

Pre-Medicine

The bachelor's degree is strongly recommended for admission to most schools of medicine, although some schools will consider applicants with unusually high academic attainment for admission after three years of undergraduate study.

Most schools require the following courses for admission:

	<i>credits</i>
Biology or Zoology (including genetics) and laboratory	12-18
Chemistry: Inorganic including qualitative analysis and laboratory ..	12
Chemistry: Organic with laboratory	12
Physics with laboratory	12
English	12-20

¹ For the requirements for school library positions, see p. 197.

Students are urged to become familiar with *Medical School Admission Requirements* which summarizes entrance requirements and other information for medical schools in the United States and Canada. A copy is available for use in the Liberal Arts Advising Office.

The Wayne State University School of Medicine requires no more science subjects than those listed in the bulletin of the School. It is advisable, however, for students to take some mathematics and some additional biology including embryology. Students are encouraged to secure a well-rounded education and to follow a major course of study of their own choosing. The Admissions Committee is influenced by the scholarly approach of a student to his education, not by the area in which he chose to concentrate.

Pre-Medical Technology

— See page 499.

Pre-Mortuary Science

Wayne State University offers a three-year curriculum leading to a certificate in mortuary science. Before admission to the University's Department of Mortuary Science for the third or professional year, the student must have successfully completed at least seventy-eight of the ninety credits required in pre-professional courses, including the subjects listed below, and must have attained an over-all overage of C (2.0 honor point average).

<i>Required Elections</i>	<i>credits</i>
English	8
Chemistry (General Inorganic)	8
Zoology or Biology	4
Social Science	8
Psychology	4
Mathematics or Accounting	4

Students who register in the College of Liberal Arts with the intention of completing the requirements for admission to the Department of Mortuary Science should consult with the staff of this department at 627 W. Alexandrine as early as possible.

Pre-Nursing

Students who wish to enter the College of Nursing must complete forty-five credits in the College of Liberal Arts. To be considered for admission, the student must complete the courses below, indicated by an asterisk, with grades of C or better and qualify in mathematics.

I. English and Communications		<i>credits</i>
English 0150* and any English 0200 course	8	
Speech 0200	4	
II. Natural Sciences		
Biology 0103* and 0220*	9	
Chemistry 0102*, 0103*, and 0104*	12	
Psychology 0198*, 0340, and Elective	12	

III. Mathematics

The mathematics requirement may be met by satisfactory completion of the mathematics qualifying examination, a grade of "S" in Mathematics 0090, or a college algebra course*.

IV. Social Sciences

Social Science 0191*, 0192	10
Sociology Elective (0400-0600)	4
One course in the social sciences	4

V. Humanities — four courses

American Studies, Art History, Classics, Humanities, Literature in any language, Music History, Speech 0260, 0266, 0273, 0286, 0316, 0367, 0369, 0569, 0584, 0586, 0588, and 0613. Courses must be taken from at least two departments. One course must be in literature. One 3-4 hour studio course will also apply.

VI. Elective Sequence — four courses

Pre-Occupational Therapy

— See page 501.

Pre-Optometry

The pre-optometry requirements represent a minimum of two academic years of study, but specific requirements for admission to schools and colleges of optometry are not identical. Typically, the requirements include courses in English, mathematics, physics, chemistry, and biology or zoology. Some schools and colleges have requirements in psychology, the social sciences, literature, philosophy, and foreign languages.

Each student must inform himself of the entrance requirements of the professional school he plans to attend. Information is available in the Liberal Arts Advising Office; individual inquiries are invited by the American Optometric Association, Committee on Vocational Guidance, 7000 Chippewa Avenue, St. Louis, Missouri 63119.

Pre-Osteopathy

Students planning on a career in osteopathic medicine are encouraged to complete requirements for the bachelor's degree, although colleges of osteopathy may admit students with high academic achievement after three years in a liberal arts college. Course requirements for admission to the various schools differ and the student should inform himself of those of the professional school he wishes to attend. The addresses of the colleges of osteopathy are available in the Liberal Arts Advising Office.

Most schools of osteopathy require the following courses for admission:

	<i>credits</i>
Biological sciences: including zoology, comparative anatomy, embryology, and genetics	12-20
Chemistry: Organic	12
Chemistry: Inorganic including qualitative analysis	12
Physics	12

Mathematics and a modern foreign language are strongly recommended.

Pre-Physical Therapy

— See page 504.

Pre-Social Work

School of Social Work — see page 514.

Undergraduate Social Welfare (Department of Sociology)
— see page 359.

TEACHER PREPARATION CURRICULA

Health Examinations — At the beginning of the freshman year, all students entering the University who are considering teacher education work should take the health examination. Students may wish to avail themselves of the services of the Speech and Hearing Clinic if they feel that they have defects which might impair their effectiveness as teachers.

With the exception of students who are planning to enter the Combined Curriculum, all students preparing to teach in one of the fields listed below will register in the College of Liberal Arts for their freshman and sophomore years and transfer to the College of Education at the beginning of their junior year. During the first two years, they will see the Liberal Arts academic advisers for general counseling. Application for entrance to the College of Education should be submitted during the third quarter of the sophomore year.

SECONDARY TEACHING

Combined Curriculum for Academic Studies

This curriculum leads to a bachelor's degree and a Michigan Secondary Provisional Certificate.

The Combined Curriculum for Secondary Teaching is offered in cooperation with the College of Education and prepares the student for teaching his major and minor subjects in the secondary school. In this curriculum the student takes his first two years of work in the College of Liberal Arts. His third and fourth years may be taken in either college depending on his choice of degree.

In electing courses during the first two years, the student should acquire a broad general education. In addition, he should begin electing courses that may be required by his future major department.

A student interested in this program should consult a Liberal Arts academic adviser who will give him a curriculum outline, provide guidance, and direct him to the adviser in his major at the beginning of his junior year.

Students may also go to the appropriate departments in the College of Education at any time during the first two years for consultation on professional programs they may be planning to pursue.

Degree in the College of Liberal Arts — The student remains registered in the College of Liberal Arts and elects a departmental major at the beginning of his junior year. However, during the third quarter of his sophomore year, he must apply to the College of Education for official admission to the combined curriculum for secondary teaching and *must be approved* by the College of Education as a candidate for teacher certification. During his junior and senior years his program requests will be signed both by his College of Liberal Arts major adviser and by the appropriate adviser in the College of Education.

Degree in the College of Education — The student applies for acceptance to the College of Education during the third quarter of his sophomore year, transfers to that College at the beginning of his junior year, and follows the degree requirements of that College.

Students may find it desirable to remain in school for a fifth year and qualify for a master's degree particularly if the supply of teachers in relation to the demand makes placement uncertain for the holder of a bachelor's degree only.

Business and Distributive Education

This program is designed to prepare business or distributive education teachers. Satisfactory completion leads to secondary certification in either specialization. The courses listed here are required and are elected during the freshman and sophomore years in the College of Liberal Arts. Refer to the College of Education section for specific requirements in professional education and in the major.

	<i>credits</i>
Economics 0101, 0102, and two other courses	16
English 0150, 0209, 0210, and one other course	16
Health 0281	3
Physical Education	3
Psychology 0198	4
Social Science 0191 and 0192	10
Speech 0200 and 0520	8

Teaching Minor — One minor of thirty-six credits is required. The recommended minor is social science (i.e., anthropology, economics, geography, history, philosophy, political science, sociology, and Social Science 0191-0192). Elections in any of these areas may be added to those in the above listed required courses to complete the minor.

Business administration courses which may be elected in the sophomore year are Accounting 0310, 0311; Marketing 0342; and Management 0160 or 0362. Other business courses may be elected with the approval of the adviser but only twelve of the eighty credits required for admission to the College of Education may be in business courses.

Elementary Teaching

For Elementary School Teachers

First Year

Major or Minor	4	PHS 0192 ¹ or 0193 ... 4 or 5	MAT 0111, 0112, or 0113 ² 3
MAT 0111, 0112, or 0113 ²	3	MAT 0111, 0112, or 0113 ² 3	PHS 0192 ¹ or 0193 ... 4 or 5
PHS 0191 ¹ ...	4	Major or Minor	S S 0191 ... 5
SPH 0200 ...	4	Phys. Ed ² ... 1	HEA 0281 ... 3
Phys. Ed ² ...	1	ENG 0150 ... 4	Phys. Ed ² ... 1

Second Year

English Elective (0200 level)	4	BIO 0103 ... 5	GEG 0110 or 0120 ... 5
History (U.S. or World) ...	4	Major 7	Major 11-12
Major or Minor	7	PSY 0198 ... 4	
S S 0192	5		

Library Education

The undergraduate program in library science provides initial preparation for library/media specialists in elementary schools or secondary schools. The combined library science-elementary program leads to certification as an elementary library/media specialist and as an elementary teacher. The combined library science-secondary program leads to certification as a secondary school library/media specialist and as a secondary school teacher in either social studies or English. In either program a thirty hour minor in library science must be elected in the junior and senior year when the student is in the College of Education.

The pre-education work in the Liberal Arts college is composed of courses contributing to the general education and major or minor requirements in each specialty. Outlines of the courses to be elected for programs in Elementary Education-Library Science, Secondary Social Studies-Library Science, Secondary English-Library Science, may be obtained from a Liberal Arts adviser. Advisers in the Division of Library Science, 315 Kresge Library, urge students planning school librarianship to consult with them early in their sophomore year.

Special Education

The curriculum in special education prepares teachers for work with exceptional children at all levels in day schools, in residential institutions, and in diagnostic-clinical centers. Courses in the first two years in the College of Liberal Arts

establish the required minor(s) for the bachelor's degree and for the basic teaching certificate. Students must earn a minimum of thirty-six credits in a group minor and additional credit in general education as designated for each major in special education. These majors are: deaf, mentally retarded and emotionally handicapped, orthopedically handicapped, and speech correction. Worksheets listing the courses for the minor and general education requirement for each of these majors can be provided by an academic adviser. Refer to the College of Education section for specific requirements in professional education and the special education major.

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	Radio, Television and Film (See Speech Communication and Theatre)
Humanities	
Journalism	

Leading to a Special Degree

Art	Law Enforcement (See Political Science)
Biology	Music
Chemistry	Physics
Computer Science	Theatre (See Speech Communication and Theatre)
Family and Consumer Resources	

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 p. 201 and are followed by a description of the courses pertinent to the major.

¹ Students are required to complete Physical Science 0191, four credits, and either 0192 or 0193, four and five credits. Students who have had high school chemistry should be advised to elect Physical Science 0193 (omitting 0192). Those who plan to major in the sciences will complete the three-course sequence. A student who has had college chemistry should not be advised to take 0192. A student who has had geology should not be advised to take 0193.

² A student must complete a total of three credits in physical education.

³ Students may elect the more advanced sequence Mathematics 0120, 0121, or 0122.

ACADEMIC REGULATIONS

Graduate

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 16. The following additions and amendments pertain to the College of Liberal Arts.

REGULAR ADMISSION¹

— see page 16.

In the selective admission of graduate students, preference is given to those students who have achieved superior undergraduate scholastic records and who evidence superior abilities.

If a student's undergraduate preparation is considered deficient for advanced work in his graduate major field, additional work may be required at the undergraduate level. All prerequisite credits must be earned prior to or concurrent with the first graduate credits. Certain degrees have additional requirements as stated under Graduate Division.

GRADUATE RECORD EXAMINATIONS

These examinations are intended to assist the student and adviser in evaluating the student's educational preparation or to serve as bases for guidance in planning future study. Although these examinations are not required under any uniform policy throughout the Graduate Division, they are required of all majors in some departments and of students in certain classifications in other departments. The student should consult the department in which he proposes to major to determine whether or not he must take the examinations.

If a student is required to take such an examination, he must apply for it at the Counseling and Testing Bureau, Room 343, Mackenzie Hall either prior to or at the time of admission. If he has previously taken the examination, he may have a transcript of his scores filed. After the first registration no subsequent enrollment will be permitted nor will candidacy be authorized until the examination requirement has been fulfilled.

GRADUATE DEGREES

Graduate degrees are conferred not merely upon the completion of a prescribed number of courses, nor necessarily after a given period of residence, but rather in recognition of each candidate's outstanding ability and high attainments as evidenced in all his course work, his research, his scholarly writing, his examinations, and his personal fitness for his profession.

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

MASTER'S DEGREES AND MAJORS

Master of Arts — with majors in

Anthropology	Humanities
Applied Mathematics	Italian
Art	Latin
Art History	Linguistics
Chemistry	Mathematics
Classics	Mathematical Statistics
Comparative Literature	Music
Computer Science	Near Eastern Languages
East European Studies	Philosophy
Economics	Physics
English	Political Science
Family and Consumer Resources	Psychology
French	Russian
Geography	Sociology
German	Spanish
History	Speech

Master of Arts in Teaching College Subjects or Fields — with majors in

Economics	Mathematics
English	Psychology
Geography	Speech
Humanities	

The immediately preceding degree is offered by the departments and divisions of the College of Liberal Arts in cooperation with the College of Education.

Master of Fine Arts — with a major in Art

Master of Fine Arts — with specialization in Theatre

Master of Music — with a major in Performance, Opera, Music History, Theory or Composition

Master of Public Administration — with a major in Public Administration

Master of Science — with majors in

Biology	Family and Consumer Resources*
Chemistry	Geology
Computer Science	Physics

Master of Urban Planning — with a major in Urban Planning

* Designation of the field is part of the degree title.

DOCTORAL DEGREES AND MAJORS

*Doctor of Philosophy —
with majors in*

Anthropology	Modern Languages
Biology	Philosophy
Chemistry	Physics
Economics	Political Science
English	Psychology
History	Sociology
Mathematics	Speech

MINOR OR COGNATE GRADUATE CREDIT

areas

American Studies	Greek
Aramaic	Journalism
Classics	Polish

Slavic (except for East European Studies majors who may earn major credit)

REQUIREMENTS

for Graduate Degrees

GENERAL REQUIREMENTS

General requirements for graduate degrees may be found in the Graduate Division section of this bulletin, beginning on p. 19. In addition to these and to the information below, other requirements are specified by the individual graduate departments. The student should consult the program and requirements of the department in which he plans to major.

CANDIDACY

Candidacy is an advanced status which is recommended by the student's adviser and authorized by the Office for Graduate Studies or Liberal Arts Graduate Office upon evidence of the applicant's superior scholarship, appropriate personal qualities, and promise of professional competence. To be eligible for candidacy, the student must file an officially approved *Plan of Work*. The *Plan of Work* should provide for effective concentration in a major field, with properly supporting courses in related fields. Ph.D. applicants should file this *Plan* with the Office for Graduate Studies; master's applicants with the graduate officer of the College. In preparing his *Plan*, the student should evaluate with care his personal and professional objectives as well as all degree and departmental requirements.

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 file a *Plan of Work* by the time the equivalent of

twelve to eighteen graduate credits have been earned. The applicant should petition his adviser to advance his rank to "candidate." In most departments candidacy must be authorized by the time eighteen graduate credits have been earned or subsequent registration is denied. *Plans* are filed with the college graduate officer.

It is recommended that an approved *Plan* be filed by the applicant for the Ph.D. degree when he has earned approximately sixty credits beyond the baccalaureate degree. *In addition to filing the Plan, the student must have satisfied foreign language requirements and must have passed the Final Qualifying Examination — written and oral — before the doctoral committee will recommend candidacy.*

COMMENCEMENT

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

REQUIREMENTS FOR THE MASTER'S DEGREE

In most master's degree programs, the minimum requirement for the degree is forty-eight credits — under either Plan A or Plan B or Plan C as follows:

Plan A requires thirty-six credits of work plus a twelve credit thesis.

Plan B requires forty-five credits of work plus a three or four credit essay.

Plan C requires forty-eight credits. Essay or thesis not required. Authorized only in selected areas. Interested students should consult adviser.

These requirements vary slightly by departments; see listings under the individual departments for exact information.

Course Requirements

At least thirty-six credits must be taken in residence.

At least eight credits of work in the major field, in addition to the essay or thesis, must be in courses open only to graduate students (0700 and above).

REQUIREMENTS FOR THE DOCTOR'S DEGREE

Preliminary Qualifying Examination

Responsibility for the requirement of a preliminary qualifying examination is vested in the graduate faculty of each department and specifically its committee on doctoral study. Accordingly, each committee may require this examination of all of

its candidates or of any candidate at any time it may determine prior to the final qualifying examination.

Final Qualifying Examination for Candidacy

A final qualifying examination is required of each applicant. Before the applicant can be recommended to this examination by his doctoral committee, he must have filed his *Plan of Work* and completed the foreign language requirement. The final qualifying examination will be in part written and in part oral. When this examination has been passed, the applicant will be advanced to the status of "doctoral candidate."

The written qualifying examination will cover the applicant's major and minor areas and may include such other related matters as the doctoral examining committee may prescribe. Within thirty days after the written examination has been passed, the oral qualifying examination will be conducted by the doctoral examining committee, with the chairman of the departmental committee on doctoral study or his designee and a graduate examiner approved by the Graduate Division. This examination will relate to the subject matter of the written examination, the applicant's major and minor areas, and other pertinent matters.

If an examining committee does not certify that the applicant has been passed in either the written or oral examinations, it must make specific recommendations with reference to admitting the applicant to a second examination and specify any additional work that should be completed prior to such an examination. If a second examination is held, it must be scheduled within one calendar year and shall be considered final.

The student's doctoral committee is selected at the time the doctoral *Plan of Work* is prepared. At this same time, and upon consultation with the Chairman of the student's doctoral committee, a member outside of the student's major department, is appointed to the committee by the Office for Graduate Studies. This appointed representative is expected to meet as a member of the student's committee while the research and preparation of the dissertation are in process. He, along with all members of the committee, will also be present at the final oral presentation. The graduate examiner files a brief report to the Graduate Division detailing the conduct of the oral presentation.

Essays, Theses, and Dissertations

There is no prescribed form for the essay. The form of the title page for the thesis shown on p. 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 has derived from his University research. Neither the results of the research nor the publication of findings can be restricted by any non-university agency, nor can they be published prior to acceptance by the Graduate Division, unless prior approval of such publication has been secured from both the adviser and the Graduate Division. Advisers have primary responsibility for approval of the essay or thesis, but every member of a doctoral committee must read, approve and sign the dissertation.

A student may not begin work on his manuscript until he has submitted his approved *Plan of Work* and outline form. He may then register for the thesis or dissertation and pay regular fees in the same manner as for all other course work.

Master's candidates under the thesis plan register for the course numbered 0899 in the department of their major. This course is entitled *Master's Thesis Research and Direction* and must be elected for a total of twelve credits. Ph.D. candidates register for forty-five credits in the course numbered 0999 in their major field, *Doctoral Dissertation Research and Direction*. All credit used toward meeting dissertation requirements must be earned in this course.

The publication and dissemination of research findings will not be restricted by the University after the approved manuscript has been received and accepted by the Graduate Office.

Outline and Record Form

Before a student begins work on his thesis or dissertation, he must file an outline and record form. Master's candidates must prepare three copies — retain one, leave one with the adviser, and file one with their graduate officer. Doctoral candidates must prepare four copies which, after receiving departmental approval, will be forwarded to the Office for Graduate Studies.



AMERICAN STUDIES

Office: 212 Old Main

Director: Richard D. Miles

Advisory Committee

Constance J. Gefvert, Ph.D., English

David S. Herreshoff, Ph.D., English

Alan Raucher, Ph.D., History

William White, Ph.D., Journalism

The American Studies Program is an integrated program which offers the student an opportunity to study the nature and development of American civilization and to develop an understanding of the relationships between American culture and that of other nations.

BACHELOR OF ARTS

Special Curriculum

The American Studies Program is interdepartmental and is administered by an advisory committee composed of members of departments offering work in the program. Students are urged to consult any member of the advisory committee for the purposes and nature of the program, and should consult those advisers whose field most closely approximates their particular interest in American studies. While the American Studies Program concentrates its major degree requirements in the junior and senior years, students are urged to consult with members of the advisory committee as early as possible, preferably in their freshman year.

Curriculum and Major Requirements—Each American studies major must complete certain required courses. Majors must also fulfill the general requirements of the College of Liberal Arts for a B.A. degree. However, the required courses in the American Studies Program may also be used to satisfy some group requirements.

In the junior and senior years, the student will be expected to elect, with the consent of his adviser, a minimum of thirty-six credits from at least five departments. The committee of advisers will guide students in their choice of such courses, which represent subject matter of particular relevance to an understanding of American civilization. These thirty-six credits are in addition to the required senior seminars and the other prescribed courses.

Required Courses:

English—at least 12 credits, selected from the following courses or their equivalents: English 0370, 0385, 0571.

History—at least 20 credits, including 4 credits in History 0130 or equivalent; 8 credits in survey courses such as History 0201, 0202, 0203 or equivalent; 8 credits in History 0518, 0519.

American Studies—at least 12 credits, including 4 credits of 0201 or 0220 or 0501; and 8 credits of 0597 and 0598; preferably taken during the senior year when possible.

Representative Electives:

American Studies 0511 (Anthropology 0506) — American Folklore
American Studies 0512 (Anthropology 0605) — Urban Folklore
Anthropology 0525 — Retention of African Culture in the New World
Anthropology 0536 — Culture and Personality
Anthropology 0627 — American Indians
Anthropology 0631 — Comparative Family Patterns of American Ethnic Groups
Art History 0600-0601-0602 — Art and Architecture in America
Economics 0543 — Comparative Economic Systems
Economics 0549 — American Labor History (History 0543)
English 0228 — Introduction to Folklore
English 0270 — Major Authors in American Literature to the Twentieth Century
English 0271 — Major Authors in American Literature of the Twentieth Century (Formerly 0279)
English 0275 — Introduction to Afro-American Literature
English 0475 — History and Development of Afro-American Literature
Geography 0632 — Historical Geography of the United States
Geography 0635 — The Geography of Ethnic Groups in the United States
History 0314-0315 — The Negro's Experience in America I and II
History 0501 through History 0524: Any of the courses in this sequence
History 0550-0551 — Comparative History: United States and Western Europe since 1890
Humanities 0575-0576 — Studies in the Arts and Ideas of American Culture
Humanities 0652 — Interrelation of the Arts in Critical Theory (Formerly 0552)
Philosophy 0548 — Pragmatism
Political Science 0201 — Political Process in the Urban Setting
Political Science 0516 — American Political Reform Movements
Political Science 0569 — American Political Thought
Psychology 0360 — Psychology of Social Behavior
Psychology 0566 (Political Science 0577) — Psychology of Political Leadership
Sociology 0508 — Race Relations in the United States
Sociology 0510 — Ethnic Groups in the United States
Sociology 0513 — Sociology of Religion
Sociology 0515 — The World of the Blue Collar

Students should not choose indiscriminately from the above and other pertinent courses, but should attempt to integrate choices around complete units, subjects, or themes. Often the prerequisites for courses such as those listed above will be waived for American Studies majors when courses from other departments will serve as substitute prerequisites or when the intent to integrate subject matter across disciplines is specifically declared. Students are urged to see a member of the American Studies Advisory Committee to learn the content of courses, to determine whether prerequisites are necessary, and to coordinate course work taken in several departments.

MASTER OF ARTS

A Master of Arts degree with a concentration in American Studies is offered under the Department of Humanities. (See page 284.) Students may wish to examine the courses listed above, along with other courses numbered above the 0600 level from these same departments, to consider as electives suitable to meet requirements for the Master of Arts degree in Humanities.

COURSES OF INSTRUCTION' (A S)

0201. Introduction to American Culture. Cr. 4.

Conflicts and changes in American heroes, values, ideas, and regions of experience introduced through study of selected American films, historical documents, and works of literature.

0220. Colloquium in the Recent Past. Cr. 4.

Restricted to students in the Liberal Arts Honors Program. Integration of disciplines involving study of twentieth century American culture. Topics to be announced in Schedule of Classes.

0490. Directed Study. Cr. 3-4 (Max. 9).

Prereq: consent of American Studies adviser. Independent reading and research on history and development of American culture.

0501. American National Character. Cr. 4.

Prereq: one course in American history; one course in American literature. Introduction to the major issues and conflicts in the study of the American character through four themes: innocence, affluence, the success myth, and quest for self. A basic course for majors, a non-specialized elective for non-majors. Inter-relations of literature, history, foreign policy, economics, race relations, immigrant studies, and American humor.

0511. (ANT 0506) American Folklore. Cr. 4.

Folklore as a product of the American experience. Historical, functional, and aesthetic treatment of such subjects as regional, occupational, immigrant folklore, traditions of the American Negro, the folk and popular hero in the United States, folklore in the mass media. Field work or term paper.

0512. (ANT 0605) Urban Folklore. Cr. 4.

Prereq: one folklore course or ANT 0210 or 0520. Folklore traditions in the urban environment, stressing the rural to urban transition, the interaction of differing traditions in the city, and discussion of the application of a knowledge of folklore to the solution of urban problems.

0597. Seminar in American Studies I. Cr. 4.

Prereq: consent of instructor or American Studies adviser. Integration of materials and concepts derived from prior work in other departments of the American Studies Program. Reading, discussion, individual research oriented toward a common theme or problem in the study of American culture. Topics to be announced in Schedule of Classes.

0598. Seminar in American Studies II. Cr. 4.

Prereq: consent of instructor or American Studies adviser. Continuation of American Studies 0597. Topics to be announced in Schedule of Classes.

ANTHROPOLOGY

Office: 201 Library Court

Chairman: James B. Christensen

Professors

James B. Christensen, Ph.D., Leonard W. Moss, Ph.D., Arnold R. Pilling, Ph.D., Victor A. Rapport, Ph.D. (Emeritus)

Associate Professors

Barbara C. Aswad, Ph.D., Gordon L. Grosscup, Ph.D., Helen E. Hause, Ph.D., F. Jane Hill, Ph.D., Bernice Kaplan, Ph.D., Mark Weiss, Ph.D.

Assistant Professors

Norris M. Durham, M.A., Daniel Evett, M.A., Martha Binford Morris, Ph.D.

Instructors

G. Elaine Rocchio, B.S., Laurel Wigle, M.A.

Cooperating Faculty, Department of Anatomy, School of Medicine

Morris Goodman, Ph.D., Professor, Gabriel W. Lasker, Ph.D., Professor.

DEGREE PROGRAMS

Bachelor of Arts — with a major in anthropology

Bachelor of Arts — with a major in anthropology and sociology

Master of Arts — with a major in anthropology

Doctor of Philosophy — with a major in anthropology and specializations in cultural anthropology, archaeology, 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, or law; (3) those expecting to engage in some form of work with the public that will require a broad grasp of the nature of society, group behavior and social change; (4) those looking forward to teaching anthropology or another of the social or behavioral sciences; (5) those preparing for a career in international studies or for work in foreign affairs or in a foreign country; (6) those majoring in anthropology as a preparation for graduate professional training in social work; (7) those planning to pursue graduate studies in anthropology. Students who plan to enter public relations, social planning, urban planning, or the teaching of social studies should consult with staff members for guidance. Students interested in social work should consult the designated advisers to undergraduates in the Graduate School of Social Work.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

BACHELOR OF ARTS

With a Major in Anthropology

Major Requirements—Students majoring in anthropology are required to elect a minimum of forty-four credits in anthropology, including Anthropology 0210, 0211, 0520, 0527, 0531, and 0638 or 0639.

Limitations—Students may not elect more than sixty-eight credits in course work within the department. No more than two courses in the area of folklore offered or cross-listed by anthropology (0502, 0506, 0508, 0605, 0607, 0608) may be used by the student as part of the minimum requirement of forty-four credits. However, the sixty-eight credit maximum and cross-listing will permit the student to elect any or all of the courses in the sequence. Courses in Swahili (Swahili 0215 through 0218) carry foreign language credit only. Swahili courses do not count toward a major in anthropology nor toward filling social science group requirements.

Honors—A number of sections have been designated as "Honors Sections," which provide smaller classes, somewhat more advanced reading, and opportunities for independent work by students. Admission requires a 3.0 overall average and consent of the department. The Norman Daymond Humphrey Memorial Award is granted annually to those students admitted to Sigma Xi and Phi Beta Kappa.

Recommended Cognate Courses—Cognates for anthropology majors are art history, biology, economics, geography, geology, history, political science, psychology and sociology.

With a Major in Anthropology and Sociology

Major Requirements—Students majoring in anthropology and sociology are required to take Anthropology 0210, 0211, 0520, 0527, 0531, and 0638 or 0639, Sociology 0201 or Social Science 0191-0192*, Sociology 0202, 0400, 0460, and 0530 or 0630 or 0631. They must complete a total of at least twenty-eight credits in sociology and twenty-eight credits in anthropology, but not more than sixty-eight credits in the two fields combined.

MASTER OF ARTS

With a Major in Anthropology

Plan A—Thirty-six credits in course work plus a thesis.

Admission—The student must have had the following courses or their equivalents: Anthropology 0210, 0211, 0520. Students must have completed the undergraduate group requirement in foreign language or its equivalent.

The student must have an undergraduate honor point average of at least 3.0. Probationary admission may be granted if the over-all honor point average is at least 2.6 with an average of

* Majors in combined anthropology-sociology may not count both Sociology 0201 and Social Science 0191-0192 as part of their twenty-eight credit requirement in sociology. Those who elect Social Science 0191-0192 will receive four credits toward their major unless, at the discretion of the department, they are required to take Sociology 0201; in such case, the 0191-0192 sequence shall count only toward the social science group requirement.

3.0 in anthropology courses. Only in exceptional cases will students with an honor point average below 2.6 be admitted as master's students. The department requires three recommendations. The recommendation forms may be secured from the department office. The completed forms are to be returned to the chairman of the department. Applicants will not be admitted to graduate work until this material has been received and evaluated.

Candidacy must be established by the time twenty credits have been earned.

Degree Requirements—All students are required to maintain a B (3.0) average. A grade of C in two courses will be sufficient reason to dismiss a student from the graduate program. There must be thirty-six credits in anthropology and related fields, including two graduate seminars in anthropology. The following courses must be taken if the student has not completed them as an undergraduate: Anthropology 0527, 0531 and 0638 or 0639. A final examination is required on the thesis and the student's general command of the field.

Plan C—Forty-eight credits in course work, demonstration of research competence and examination.

Admission—Available only to doctoral applicants and awarded, on application, to qualified students successfully pursuing work for the Ph.D. in anthropology. Consult the department chairman for further details.

DOCTOR OF PHILOSOPHY

With a Major in Anthropology

Admission—Only a limited number of applicants who have demonstrated superior ability can be accepted. To be considered for admission a student must have either a 3.0 (or above) undergraduate honor point average, or a master's degree or its equivalent. However, neither of these qualifications by themselves constitute evidence of aptitude for doctoral work. The student must have had the following courses or their equivalents: Anthropology 0210, 0211, 0520.

In addition to the transcripts and other materials required by the Graduate Division, the department requires three recommendations. The recommendation forms may be secured from the department office. The forms are to be returned to the chairman of the department. An applicant's admissibility into the doctoral program will not be reviewed until these materials have been received. For further information, contact the Chairman of the Department of Anthropology.

Degree Requirements—All students are required to maintain a B (3.0) average. A grade of C in two courses will be sufficient reason to dismiss a student from a graduate program.

In order that the student may obtain the broad background of factual and theoretical material required in anthropology and may recognize the unity of the various subfields, he 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 tech-

niques (including statistical procedures) in common usage in his subfield of concentration (cultural anthropology, linguistics, archaeology or physical anthropology); (3) command the major concepts of all subfields in anthropology); (4) demonstrate a proficiency in a scholarly language in accordance with Graduate Division requirements. (Where a student will be learning another language for field research, he will be permitted, with Graduate Division approval, to utilize this as his language requirement. See Graduate Division section of this bulletin for discussion of language requirement.); (5) successfully complete a written and oral qualifying examination establishing competence in depth in his subfield of specialization together with lesser concentration in the three other subfields; (6) complete substantial field research, which will ordinarily be of sufficient duration and scope to provide materials for his dissertation (in the case of physical anthropology and some other specializations, the dissertation may be based on laboratory research); and (7) submit an acceptable dissertation and present a final lecture.

A more detailed discussion of the doctoral program is available from the department on request.

Assistantships and Fellowships—A limited number of assistantships and fellowships are available. Consult the department chairman for further details.

Doctoral applicants are required to have three successive quarters in residence as full-time students as defined by the Graduate Division. (See the appropriate section under "Degree Requirements" on page 22 in the Graduate Division section of this bulletin.)

COURSES OF INSTRUCTION¹ (ANT)

Also see Swahili (SWA) page 207.

0210. Introduction to Anthropology. Cr. 4.

Prereq: sophomore standing. Biological evolution, racial differences, prehistoric man and early cultures, ethnography, language and cultural growth, diffusion and independent invention, problems of the field.

0211. Introduction to Physical Anthropology. Cr. 4.

Prereq: sophomore standing. Role of hereditary and environmental factors, human genetics, meaning of "race" and racial classifications, fossil record, evolution of man.

0390. Directed Study. Cr. 2-4 (Max. 8).

Prereq: 16 credits in anthropology with grade A or B; consent of instructor. Open to juniors and seniors who show ability and interest and who desire to do advanced reading. Student should make arrangements with instructor in charge of field in which reading is to be done.

0421. World Ethnography. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Selected representative cultures from Oceania, Islamic North Africa, Near East, Subsaharan Africa, Asia, American Indian.

0490. Honors Program in Anthropology. Cr. 2-8 (Max. 20).

Prereq: junior standing; 3.0 h.p.a.; 3.3 h.p.a. in department; 18 credits in sociology and anthropology; consent of chairman or dean. For distinctly superior students who can pursue independent program of research and studies. Student reports on progress of work at bi-weekly pro-seminar meetings.

0502. Folklore and Culture. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Relationships between folklore and culture in literate and non-literate societies. Various "schools" of folkloristic analysis.

0506. American Folklore (A S 0511). Cr. 4.

Folklore as a product of the American experience. Historical, functional, and aesthetic treatment of such subjects as regional, occupational, immigrant folklore, traditions of American Negro, the folk and popular hero in the United States, folklore in the mass media. Field work or term paper.

0508. Folklore. Cr. 4.

Introduction to the forms of oral literature and folk tradition: folktale, legend, myth, folksong, proverb, riddle, custom and belief. Aesthetic and social contexts.

0510. The World of Language (LIN 0510). Cr. 4.

Introduction to the field of linguistics with concentration on the scope, basic concepts, and methodologies of the field.

0519. Peasant Culture. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Survey of peasant cultures around the world; social role of peasant and his relations to market, to village, and to town.

0520. Social Anthropology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192, or ANT 0210. Types of social organization and cultural heritage; ancient, primitive and complex cultures analyzed, compared, contrasted.

0525. Retention of African Culture in the New World. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. African background of New World Negro; slave trade; and degree to which African culture has been retained in various areas of the New World.

0527. Introduction to Archaeology. Cr. 4.

Prereq: ANT 0210. Archaeological methods and theory, artifact analysis and dating techniques.

0528. Field Work in Archaeology of the New World. (0,12). Cr. 4 (Max. 8).

Prereq: ANT 0210 and consent of instructor; ANT 0527 recommended. Introduction to reconnaissance and excavation of sites; preparation and cataloging of museum specimens.

0529. Introduction to Phonology (LIN 0529). Cr. 4.

Prereq: ANT 0520 or consent of instructor. Scientific study of languages through an examination of linguistic structures; sound systems.

0530. Introduction to Morphology (LIN 0530). Cr. 4.

Prereq: ANT 0529 or consent of instructor. Representation of meaning in the forms of languages.

0531. Language and Culture (LIN 0531). Cr. 4.

Prereq: ANT 0210 or consent of instructor. Relationship between linguistic categories and patterns of culture. Functioning of language in society. Knowledge of linguistics not required.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0533. Middle Eastern Societies (NE 0533). Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Stratification, ethnic and religious groups; peasant, nomadic and urban sectors and their interrelationships; family, marriage and sex roles; nationalism, colonialism and revolutionary movements.

0535. Economic Anthropology. Cr. 4.

Prereq: ANT 0210 or consent of instructor. Cross-cultural analysis for testing economic concepts. Technology, trade, incentives, rewards, division of labor, specialization, property in different societies and their interrelationships.

0536. Culture and Personality. Cr. 4.

Prereq: ANT 0210 or 0520 and either PSY 0360 or SOC 0460 or written consent of instructor. Introduction to ethno-psychology; influence of culture on personality formation; relation of cultural patterns, modes, and imperatives to perception, cognition, and other psychological factors.

0537. Comparative Religion. Cr. 4.

Prereq: ANT 0520 or consent of instructor. The nature and variety of primitive religious belief and practice; theoretical approaches and interpretations.

0550. Syntax (LIN 0550). Cr. 4.

Prereq: ANT 0529 and 0530 or consent of instructor. Introduction to syntactic analysis utilizing different theoretical approaches.

0560. Anthropological Museology. (4,4). Cr. 4 (Max. 8).

Prereq: ANT 0210 and 0527 or consent of instructor. Introduction to specimen identification and care, cataloging procedure, display techniques and museums.

0605. Urban Folklore (A S 0512). Cr. 4.

Prereq: one folklore course or ANT 0210 or 0520. Folklore traditions in the urban environment, stressing the rural to urban transition, the interaction of differing traditions in the city, and discussion of the application of a knowledge of folklore to the solution of urban problems.

0606. Urban Anthropology (SOC 0606) (UP 0531). Cr. 4.

Prereq: ANT 0210, 0520 or consent of instructor. Socio-cultural effects of urbanization in the developing areas of the world, particularly Africa, Latin America, Southeast Asia and India. The process of urbanization; the anthropological approach in the area of urban studies.

0607. Oral Tradition and Written History (HIS 0607). Cr. 4.

Prereq: completion of basic survey history requirements. The arguments pro and con for the use of oral material in the compiling of the historical record, and an investigation of past use and misuse of tradition by scholars in the writing of history.

0608. (ENG 0628) Studies in Folklore. Cr. 4 (Max. 8).

Prereq: ENG 0228 or 0360 or 0465 or ANT 0210 or consent of instructor. Use of folklore in literature; field work; analysis of collected oral literature; study of separate genres of oral literature and analysis of parallel texts. Topics to be announced in Schedule of Classes.

0609. Culture and Ecology. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Ethnological approaches to interrelationship of environmental, demographic and socio-cultural variables. A survey of relevant ethnographic reports and theoretical and methodological problems.

0611. Human Variability. Cr. 4.

Prereq: ANT 0211. The concept of race and its genetic basis. Human variability as a result of adaptation and other genetic mechanisms. A discussion of Mendelian genetics, population genetics and biometrics as they apply to the understanding of human variation.

0612. Human Evolution. Cr. 4.

Prereq: ANT 0211. The origin and development of the primates with special emphasis on the evolution of the Hominids.

0613. Methods of Physical Anthropology. (3,2). Cr. 4.

Prereq: ANT 0211 and consent of instructor. Use of, and theory behind, techniques employed by physical anthropologists. Means of studying human microevolution.

0614. Biology and Culture. Cr. 4.

Prereq: ANT 0210 and 0211. Interrelationships between the cultural and biological aspects of man; human genetic variability, human physiological plasticity and culture as associated mechanisms by which man adapts to environmental stress.

0615. Primate Behavior. Cr. 4.

Prereq: ANT 0211. Comparative behavior of the non-human primates and its application to the understanding of human behavior.

0616. Primate Evolution. Cr. 4.

Prereq: ANT 0211. Evolutionary theory and its application to the evolution of the non-human primates, fossil and living.

0617. Political Anthropology. Cr. 4.

Prereq: ANT 0210 or 0520. Comparative political systems of primitive societies. Government, the state, warfare, law, and social control. Theoretical approaches with analysis of representative societies.

0618. Theory and Problems of Emergent Countries (SOC 0618). Cr. 4.

Prereq: SOC 0201 or S S 0191-0192 or ANT 0210. Underdeveloped and developing countries. Emergent nationalism and socio-cultural factors affecting change. Cultural, demographic, institutional, technological aspects.

0620. Cultures and Peoples of Mediterranean Europe. Cr. 4.

Prereq: ANT 0210, 0520 or consent of instructor. Ecological patterns, themes, and values of Mediterranean society; peasant and urban sectors, community studies, social change.

0621. Ethnography of Italy. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Ethnography of peninsular and insular Italy. Ethnohistory of regional sub-cultures. Pre-Roman migration and settlement. Contemporary problems of culture and socio-economic change. Interrelationships of contemporary institutions within Italian society.

0622. Cultures and Peoples of North Africa. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Geography, ethnic components, and languages of North Africa; comparison of traditional cultures of the Bedouin and settled villagers; background of contemporary nationalism.

0623. Cultures of Subsaharan Africa. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Subsaharan African cultures and societies; emphasis on both complex and simple political systems.

0624. Stability and Change in Contemporary Africa. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Cultural and social change in Subsaharan Africa; impact of European and North African culture on the societies of the subcontinent.

0626. Latin America (SOC 0626). Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210 or consent of instructor. Population: race, stratification, institutions, social change; contemporary literate societies.

0627. American Indians. Cr. 4.

Prereq: ANT 0210 or consent of instructor. Survey of Indian and Eskimo cultures north of Mexico; adjustment to environment; history of the several tribes.

0628. Ethnology of Oceania. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Ethnography of Polynesia, Micronesia, Melanesia, Indonesia, and Australia; ethnohistory of Oceania — migration, settlement, acculturation.

0629. Culture Area Studies. Cr. 4 (Max. 12).

Prereq: ANT 0210 or consent of instructor. Culture and social changes. Origins and functional interrelationships, regional variation in population, settlement, race contact, acculturation, migration; social institutions. Topics announced in Schedule of Classes.

0630. Latin American Ethnology. Cr. 4.

Prereq: ANT 0210 or SOC 0201 or HIS 0525 or 0526. Cultural variation within Latin America, emphasizing continuities and changes in the transition from Indian and Mestizo society to modernization within national contexts.

0631. Comparative Family Patterns of American Ethnic Groups. Cr. 4.

Prereq: ANT 0520. Courtship, marriage, divorce, division of labor within household, and other patterns between kinsmen. The old New England Puritan tradition, Amish, Irish, Polish, Southern Negro, Eastern European Jewish.

0633. Comparative Kinship and Marriage. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Kinship patterns and functions, marriage and patterns of descent. Relationship of family and kinship groupings to such aspects as economics, religion and political structure and the theoretical implications.

0638. Anthropological Theory before 1940. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Period prior to 1850. Since 1850: contributions of Darwin, Spencer, Boas, Durkheim, Malinowski, Radcliffe-Brown, Tylor and Morgan; American, British, German cultural and social anthropology.

0639. Contemporary Theory in Anthropology. Cr. 4.

Prereq: ANT 0638 or 24 credits in anthropology; or consent of instructor. Analytical framework in use and developments in theory since 1940; the comparative method in the social sciences. Contemporary anthropological problems.

0649. Historical Archaeology of North America. Cr. 4.

Prereq: ANT 0527 or consent of instructor. Archaeological techniques and their uses in augmenting the historical record of North America; types of historic sites; artifact types; interpretation of excavations.

0650. North American Prehistory. Cr. 4.

Prereq: ANT 0210 or consent of instructor; ANT 0527 recommended. Prehistory of North America north of Mexico from the late Pleistocene to Euro-American contact.

0651. Meso-American Prehistory. Cr. 4.

Prereq: ANT 0210 or consent of instructor; ANT 0527 recommended. Prehistory of Mexico and Central America from the late Pleistocene to the Spanish conquest.

0652. South American Prehistory. Cr. 4.

Prereq: ANT 0210 or consent of instructor; ANT 0527 recommended. Prehistory of South America from the late Pleistocene to the Spanish conquest.

0653. Prehistoric Archaeology of the Mediterranean. Cr. 4.

Prereq: ANT 0527. The prehistoric archaeology of Europe, North Africa and the Near East; the Paleolithic through Neolithic cultural periods.

0654. Experimental Archaeology. (2,4). Cr. 4.

Prereq: ANT 0527 or consent of instructor. Experimental attempts to duplicate the end-products of prehistory in an effort to delimit the factors that influence the forms, functions, and distribution patterns of artifacts.

0710. Studies in Linguistics (LIN 0710). Cr. 4-16.

Prereq: ANT 0529, 0530 and 0550. Topics to be announced in Schedule of Classes.

0720. Methodology and Research Techniques. Cr. 2-4 (Max. 8).

Prereq: consent of instructor. Prepares students for field or laboratory research. Training and techniques relevant to areas of specialization of students.

0760. Seminar in Problems and Concepts in Physical Anthropology. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories. Current developments, problems, and contemporary research orientations. Topics to be announced in Schedule of Classes.

0761. Seminar in Problems and Concepts in Linguistics (LIN 0761). Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories in linguistics. Current developments, problems, and contemporary research orientations in the field. Topics to be announced in Schedule of Classes.

0762. Seminar in Problems and Concepts in Archaeology. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories. Current developments, problems, and contemporary research orientations. Topics to be announced in Schedule of Classes.

0763. Seminar in Problems and Concepts in Cultural Anthropology. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in Schedule of Classes.

0764. Seminar in Problems and Concepts in Linguistic Anthropology (LIN 0764). Cr. 4 (Max. 12).

Prereq: ANT 0531 or consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in Schedule of Classes.

0765. Seminar in Problems and Concepts in Peasant Culture. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories. Current developments, problems, and contemporary research orientations. Topics to be announced in Schedule of Classes.

0766. Seminar in Urban Anthropology. Cr. 4 (Max. 12).

Prereq: ANT 0606 or consent of instructor. Developing concepts and theories relevant to urbanization. Current developments, problems and contemporary research orientations. Topics to be announced in Schedule of Classes.

0771. Seminar in Cultural Dynamics. Cr. 2-4.

Prereq: consent of instructor. Aspects of cultural change, including innovation and diffusion of culture; syncretism and reinterpretation and other processes of culture change. Result of contact of European and native peoples throughout the world.

0772. Seminar in Culture and Personality. Cr. 2-4.

Prereq: consent of instructor. Ethno-psychology; role of culture in personality formation; interaction of biological, social and cultural factors in human behavior.

0773. Seminar in Cultural Aspects of Industrialization. Cr. 2-4.

Prereq: consent of instructor. Socio-cultural factors hindering and facilitating industrialization of societies around the world; cross-cultural comparisons.

0779. Seminar in Development of Ethnological Theory. Cr. 2-4.

Prereq: consent of instructor. Growth of ethnology, differentiation of leading points of view regarding problems and subject matter. Evolutionists, historical schools, functionalists, advocates of culture and personality approaches.

0790. (ANA 0790) Directed Study in Physical Anthropology. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and graduate officer.

0791. Directed Study in Linguistics (LIN 0791). Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

0792. Directed Study in Archaeology. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

0793. Directed Study in Cultural Anthropology. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

0890. Directed Study. Cr. 2-10 (Max. 10).

Prereq: consent of adviser, written consent of graduate officer.

0891. Field Problem. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

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

Prereq: consent of adviser.

0990. Directed Study. Cr. 2-10 (Max. 10).

Prereq: consent of adviser and graduate officer.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

Swahili (SWA)

0215. Elementary Swahili I. Cr. 4.

Prereq: sophomore standing. Foreign language credit only. Training in pronunciation, aural comprehension, oral and written expression. Supervised laboratory period for part of class preparation.

0216. Elementary Swahili II. Cr. 4.

Prereq: SWA 0215. Foreign language credit only. Continuation of Swahili 0215.

0217. Elementary Swahili III. Cr. 4.

Prereq: SWA 0216. Foreign language credit only. Continuation of Swahili 0216.

0218. Intermediate Swahili. Cr. 4.

Prereq: SWA 0217. Foreign language credit only. Conversational Swahili and grammar review; reading of Swahili literature. Continuation of Swahili 0217.

ART AND ART HISTORY

Office: 450 West Kirby
Chairman: G. Alden Smith

Professors

William A. Allen, M.S., Wayne Andrews, Ph.D., Wilfred C. Becker, M.A., Mary Jane Bigler, M.A., Wayne Claxton, M.A. (Emeritus), Olga Constantine, M.A., Phillip G. Fike, M.S., Peter J. Gilleran, M.F.A., Bernard M. Goldman, Ph.D., Joseph Gutmann, Ph.D., David A. Mitchell, M.F.A., Louise J. Nobili, M.A., William E. Pitney, M.F.A. (Emeritus), Ernst Scheyer, Ph.D. (Emeritus), G. Alden Smith, M.F.A., Robert J. Wilbert, M.F.A., Sherman A. Willson, M.A., William T. Woodward, M.A.

Associate Professors

David H. Becker, M.F.A., Aris Koutroulis, M.F.A., Ellen M. Laing, Ph.D., Thomas Parish, M.A., Patricia A. Quinlan, M.A.

Assistant Professors

Richard J. Bilaitis, M.A., John D. Egner, M.F.A., Thomas P. Fitzgerald, M.F.A., Alastair Granville-Jackson, M.F.A.; F.R.S.A., John G. Hegarty, M.F.A., John D. Hilberry, B.Arch., Urban R. Jupena, M.F.A., Dan Mato, M.A., John C. Mills, M.A., Stanley L. Rosenthal, M.F.A., Barbara Tiso, M.F.A.

Instructors

Melvin Baker, M.F.A., James E. Nawara, M.F.A., Lucille P. Nawara, M.F.A., Robert J. Nelson, Ph.D., Dominic Ricciotti, M.A., Dorian H. Stross, B.A., Joseph S. Warren, M.F.A.

Adjunct Professors

William Bostick, M.A., Fred J. Cummings, Ph.D., Richard C. Muhlberger, M.A., William Peck, M.A.

DEGREE PROGRAMS

Bachelor of Arts — with a major in art or art history

Bachelor of Fine Arts — with a major in art and concentration in one of the following: advertising design, crafts, graphics, industrial design, interior architecture, painting, or sculpture.

Master of Arts — with a major in art and specialization in one of the following: advertising design, crafts, graphics, industrial design, interior architecture, painting, or sculpture.

Master of Arts — with a major in art history or museology.

Master of Fine Arts — with a major in art and specialization in one of the following: crafts, design, graphics and drawing, painting, or sculpture.

The courses in art are designed to provide a broad understanding and the opportunity for full experience in the visual

arts. A cooperative arrangement between the department and the Detroit Institute of Arts provides the student an opportunity for specialized study and research in the history of art.

The Department of Art and Art History reserves the right to retain for its permanent collection the work submitted by students for credit in any course and to exhibit or reproduce in University publications such work.

Undergraduate majors in the Department of Art and Art History, except those majoring in art history, may elect to work for either of two degrees: Bachelor of Arts or Bachelor of Fine Arts.

Transfer students in studio arts must present portfolios of their art work. If accepted on the basis of portfolios and transcripts, they must take at least forty credits in art courses in residence for either the B.A. or B.F.A. degree.

BACHELOR OF ARTS IN ART

Major Requirements — Sixty-four to seventy-two credits must be elected in art. Philosophy 0370 (Aesthetics) is required. For specific requirements, consult the Art Department.

BACHELOR OF ARTS IN ART HISTORY

Major Requirements — Students must complete the introductory survey sequence (Art History 0110, 0111, 0112, or equivalent), Art History 0214 or 0215, 0220, 0300, a minimum of twenty-four credits in advanced courses, Philosophy 0370 (Aesthetics), and two years of college level foreign language.

BACHELOR OF FINE ARTS

Special Curriculum

Curriculum and Major Requirements — 96 to 120 credits must be elected in art. A foreign language is not required, but all other Group Requirements must be met and Philosophy 0370 must be completed. For specific requirements and general outline of the following fields of concentration, consult the Art Department office.

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| a. Advertising Design | f. Industrial Design |
| b. Crafts (ceramics, metalwork, weaving) | g. Interior Architecture |
| c. Design | h. Painting |
| d. Drawing | i. Photography |
| e. Graphics | j. Sculpture |

MASTER OF ARTS IN ART

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-five credits in course work plus an essay.

Admission — The applicant must present the equivalent of an undergraduate major in art, including the basic prerequisites for graduate study in art. Before any admission can be recommended, the Departmental Committee on Graduate Study or the area coordinator must approve undergraduate prepara-

tion and scholarship, and verify the applicant's potential for graduate study.

Candidacy must be established by the time twenty-four credits have been earned.

Degree Requirements— Each candidate is expected to work toward his goal by means of a definite plan, approved by the departmental committee, the area coordinator, or the adviser, which will determine course selections, the choice of thesis (Plan A) or essay-project (Plan B) and any other requirements necessary to make the plan a comprehensive and coherent unit. A two-year program in museology for art history candidates is offered in cooperation with the Detroit Institute of Arts.

In his terminal quarter, a candidate in advertising design, crafts, industrial design, or interior architecture will prepare an exhibition of work executed during the period of graduate study for evaluation by the Art Department.

Minor-cognate credits in Philosophy 0370 or 0571 are required, unless the equivalents were included in the undergraduate degree.

MASTER OF ARTS IN ART HISTORY

Plan A — Forty-eight credits in course work including twelve credits of thesis.

Plan B — Forty-four credits in course work plus an essay.

Admission — The applicant must have an undergraduate degree in art history or equivalent, a minimum B average in undergraduate art history, and two years of college level work in one foreign language (German is preferred).

Candidacy must be established by the time twenty-four credits have been earned.

Degree Requirements — The student is expected to concentrate in one of the major areas: ancient, medieval, renaissance-baroque, nineteenth and twentieth centuries, American, Oriental, ethnographic.

MASTER OF ARTS IN MUSEOLOGY

Plan A — Ninety credits in course work including twelve credits of thesis.

Admission — Regular admission to the Graduate Division of the University and to the Department of Art and Art History are required. The student must have an undergraduate degree in art history or in a related area with a concentration of work in art history and reading knowledge of one foreign language. Admission is determined by a joint committee of the Department of Art and Art History and the Detroit Institute of Arts.

Candidacy must be established by the time twenty-four credits have been earned.

Degree Requirements — The program leading to the Master of Arts in Museology is a two-year course of study. The stu-

dent must complete a minimum of thirty-six credits in art history including twelve credits in thesis work and forty-two credits in museum internship. Reading knowledge of a second foreign language is to be acquired during the first year of study in the program if it has not already been acquired in undergraduate work.

MASTER OF FINE ARTS IN ART

Plan B — Forty-eight credits beyond twenty-four graduate credits or the M.A. in art, including three credits in essay.

Plan C — Forty-eight credits beyond twenty-four graduate credits or the M.A. in art. No essay required. Students electing Plan C must complete the requirements of their area of specialization. Specific area requirements are available in the department office.

Admission — Admission to the Master of Fine Arts program in painting, drawing, sculpture, printmaking, ceramics, metal-smithing, weaving, industrial design, interior architecture or advertising design is by invitation to those who have completed a minimum of twenty-four credits toward the Master of Arts degree, or by examination of portfolio and transcripts for those already holding the Master of Arts degree in art. In either case, the M.F.A. degree program demands superior qualifications and an exceptional potential and commitment as a professional artist.

Candidacy must be established by the time twenty-four credits have been earned. The applicant must file a copy of his plan of work with his adviser. An applicant becomes a degree candidate only upon recommendation of his advisory committee.

Degree Requirements — The candidate must complete a minimum of forty-eight credits in the M.F.A. program. His course of study should be planned to include at least thirty-two credits of work in his major studio area, eight credits in electives and participation in the continuing Master of Fine Arts Seminar. In addition, the candidate must complete either an essay, the character of which is determined by the student and his advisory committee, or the specific studio area requirements as outlined under Plan C. Full time attendance is required in the program, which generally includes four quarters of work excluding summer. All M.F.A. candidates must meet the following departmental requirements: a terminal exhibition, a final examination of the student and his accumulated work; and submission of a minimum of twelve 2 x 2 transparencies of his work, accompanied by a brief, relevant, written statement.

The program provides the student with opportunity for intensive work toward his personal goals as an artist. The entire departmental graduate staff is available to him for consultation and instruction.

COURSES OF INSTRUCTION¹

Studio Courses (ART)

0101. Drawing I. Cr. 4.

Introductory training in basic drawing skills: inanimate subject matter, simple perspective and composition. Dry drawing media.

0102. Drawing II. Cr. 4.

Prereq: ART 0101. Continuation of Art 0101. More complex subject matter. Dry media continued with introduction to wet media and limited color.

0103. Drawing III. Cr. 4.

Prereq: ART 0102. Continuation of Art 0102. More experimental problems with exposure to complex drawing media. Head studies emphasizing underlying structure.

0131. Basic Design I. Cr. 4.

Prereq: AH 0100. Principles of design as a foundation for all work in art. Two-dimensional design. Composition in line, shape, value and texture. Creative experimentation with various media and techniques. Laboratory and lecture.

0132. Basic Design II. Cr. 4.

Prereq: ART 0131. Color composition; color systems and phenomena. Laboratory and lecture.

Prerequisites for all art and art education majors to the following studio courses (unless otherwise noted): Art History 0100, Art 0103, 0132; written consent of instructor required for all others who may lack these prerequisite courses.

0203. Beginning Life Drawing. (2,9). Cr. 4.

Prereq: ART 0103. Basic life drawing, exploration of structural and visual forms of the human figure.

0204. Life Drawing. Cr. 4.

Prereq: ART 0203. Systematic study of the human figure, more complex problems related to the subject. More complex media employed.

0209. Basic Painting. Cr. 4.

Introduction to elementary problems of painting. Various approaches to the technical handling of tools, pigments and processes, through the use of simple painting materials. Basic form observation and analysis.

0210. Beginning Oil Painting. Cr. 4.

Prereq: ART 0209. Structural organization of the painting surface. Individual problems in subject matter. Laboratory and lecture.

0212. Beginning Water Color. Cr. 4.

Prereq: ART 0209. Fundamentals of technical handling of the medium. Subject matter in relation to the medium. Still life and landscape.

0221. Sculpture: Introductory Non-Figurative. Cr. 4.

Exploration of three dimensional, non-objective forms; exposure to primary materials, traditional and contemporary concepts. Laboratory, lecture and critique.

0222. Sculpture: Introductory Figurative. Cr. 4.

Problems of figuration in sculpture, direct study of the human form. Introduction to casting technique; variety of final materials. Laboratory, lecture and critique.

0232. Basic Design III: Three Dimensional. Cr. 4.

Prereq: ART 0132. Organic and structural properties of paper, wood, metal, plastic, and other basic materials. Expressive experimentation. Laboratory and lecture.

0238. Photography. Cr. 4.

Open elective. Introductory course. Lectures, demonstrations, discussions, readings in fundamentals of black and white photographic production. Laboratory program of studio and dark room work culminates in production of salon prints.

0239. Photography. Cr. 4* (Max. 12).

Prereq: ART 0238. Use of basic techniques acquired in Art 0238 in accordance with elements and principles of art to produce advanced forms of photography.

0244. Advertising Design: Introduction to Lettering, Layout, and Typography. Cr. 4.

Group and individual instruction in lettering, rough and comprehensive layouts, basic typography. Laboratory and lecture.

0245. Advertising Design: Presentation. Cr. 4.

Prereq: ART 0244. Further problems in all advertising media. Comprehensive layouts. Laboratory and lecture.

0306. Printmaking. Cr. 4.

Problems developed from original drawings. Fall: Woodcut, wood engraving; Winter: Wood engraving, serigraphy; Spring: Serigraphy, woodcut. Laboratory and lecture.

0309. Composition. Cr. 4.

Prereq: ART 0210, 0212. Traditional and contemporary attitudes toward the organization of pictorial space; experiments in ordering and composing.

0310. Oil Painting. Cr. 4.

Prereq: ART 0210. Continuation of Art 0210. Individual development. Laboratory and lecture.

0311. Figure Painting: Oil. Cr. 4.

Prereq: ART 0204; prereq. or coreq: ART 0310. Human form. Utilization of various techniques as a means toward understanding traditional and contemporary aspects.

0312. Water Color. Cr. 4.

Prereq: ART 0212. Continuation of Art 0212. Composition and individual expression. Still life, landscape, figure.

0313. Figure Painting: Water Color. (0,9). Cr. 4.

Prereq: ART 0204; prereq. or coreq: ART 0312. Human form. Utilization of various techniques and materials as a means toward understanding traditional and contemporary aspects of figure painting.

0330. Introduction to Industrial Design. Cr. 4* (Max. 12).

Prereq: ART 0232. Continuation of Art 0232. Experimental techniques. Experience with various basic materials and tools in industry. Product analysis and styling concepts. Sketches and models. Lecture, laboratory, field trips.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

*Additional credits may be elected in a given quarter with written consent of instructor.

0331. Presentation Techniques. Cr. 4* (Max. 16).

Basic black and white rendering techniques — pastel, felt pen, quick sketching — primarily for industrial and commercial presentation.

0334. Interior Design: Home Planning. Cr. 4.

Open elective. Coordination of architecture, furnishings, decorations. Basic design principles and fundamental relationships of color, texture, pattern, and architectural structure. Decorative and practical treatment of the interior. Lecture.

0336. Perspective Drawing. Cr. 4.

Prereq: ART 0212. Principles of composition in space. The technical relationships of view, scale and size. A system for delineating objects of any size within any format.

0338. (SPH 0387) Basic Cinematography Techniques. Cr. 4.

Prereq: SPH 0270. Composition, pictorial continuity, screen direction, lighting for motion pictures.

0360. Ceramics. Cr. 4.

Introduction to materials and construction, design processes, glazing, firing. Laboratory practice in building pottery by hand. Laboratory and lecture.

0362. Applied Design: Metal. Cr. 4.

Open to majors in archaeology, anthropology, and art history by consent of the instructor. Elements of design and fabrication techniques in metal and other media. Gold, silver, copper, and bronze smithing, including small form casting of sculpture and ornament.

0364. Textile Design and Weaving. Cr. 4.

Group and individual instruction in basic weaving techniques adapted to a simple loom and non-loom projects. General enrichment of weaving.

0365. Related Fibers. Cr. 4.

Introduction to the nature and use of fibers. Each term a new treatment related to fibers will be explored; type of process to be announced in Schedule of Classes.

0500. Foreign Study in Studio Art. Cr. 8-12.

Prereq: consent of instructor. Work experience in the studio arts in specific geographical areas. New perceptive experiences within artistic and cultural environment of a foreign country. Studio work, field trips to monuments, landmarks, artifacts and museums. Summer only.

0502. Anatomy. Cr. 4.

Prereq: ART 0204. Human anatomy as visual structural form. Principal skeletal and muscle structure and functions.

0503. Advanced Life Drawing. Cr. 4* (Max. 32).

Prereq: ART 0209 and 0502 or equiv. Continuation of Art 0204. Individual drawing directions stressed. Multiple figures, composition, scale exploration. Variety of media.

0504. Advanced Drawing. (2,7). Cr. 4* (Max. 32).

Prereq: ART 0204. Individual problems stressing optional media and approach; development of personal imagery and concepts. Laboratory, lecture, criticism.

0505. Beginning Intaglio Printmaking. Cr. 4.

Prereq: ART 0204. Basic metal plate techniques. Etching, aquatint, engraving, drypoint, soft ground. Laboratory and lecture.

0506. Advanced Printmaking: Intaglio. Cr. 4* (Max. 32).

Prereq: ART 0505. Intaglio techniques: multiplate and single plate color printing. phototransfer, lift-ground; various experimental techniques. Laboratory, lectures, criticism.

0507. Printmaking: Plate Lithography. (0,9). Cr. 4* (Max. 16).

Fundamentals in dealing with basic technical aspects of black-and-white stone and aluminum plate lithographic printing.

0508. Collograph and Advanced Printmaking. Cr. 4* (Max. 32).

Prereq: ART 0306. Built-up intaglio plates, woodcut, wood engraving and serigraphy. Laboratory and lecture.

0509. Painting Laboratory. Cr. 4* (Max. 32).

Prereq: ART 0309, 0310 or 0312. Ideas pertinent to experimental materials and traditional media other than oil and water color; choice of media determined by individual needs.

0510. Advanced Oil Painting. Cr. 4* (Max. 32).

Prereq: ART 0309 and 0310. Continuation of Art 0310. Individual problems and experimentation. Laboratory and lecture.

0511. Advanced Figure Painting: Oil. Cr. 4* (Max. 24).

Prereq: ART 0309, 0311 and consent of adviser. Continuation of Art 0311. Advanced problems. Laboratory and lecture.

0512. Advanced Water Color. Cr. 4* (Max. 32).

Prereq: ART 0309 and 0312. Continuation of Art 0312. Individual problems and experimentation in related media. Laboratory and lecture.

0513. Advanced Figure Painting: Water Color. (2,6). Cr. 4.

Prereq: ART 0309, 0313 and consent of adviser. Continuation of Art 0313. Advanced problems.

0521. Sculpture: Non-Figurative. Cr. 4* (Max. 16).

Prereq: ART 0221 or 0222. Progressive problems in non-objective sculpture and materials techniques. Laboratory, lecture and critique.

0522. Sculpture: Figurative. Cr. 4* (Max. 16).

Prereq: ART 0221 and 0222. Progressive problems of figuration; use of model for group and individual projects; craft of casting. Laboratory, lecture and critique.

0523. Sculpture: Advanced Technology. (2,6). Cr. 4* (Max. 16).

Prereq: ART 0521 and 0522. Visual aspects and theory derived from studies of technological movements as related directly to sculptural form in time and space.

0529. Sculpture: Professional Practice. (2,2). Cr. 4.

Prereq: ART 0521 or 0522. Open only to sculpture majors. Art and law in relation to contracts and liability; studio organization and management, health and safety factors, hazards in use of new materials and chemicals and their control. Lecture, laboratory and field work.

0530. Industrial Design. Cr. 4* (Max. 24).

Prereq: ART 0330. Design problems in transportation, shelter, furniture, packaging, appliances. Working drawings, presentation sketches, models. Laboratory and lecture.

*Additional credits may be elected in a given quarter with written consent of instructor.

0531. Industrial Design Presentation. Cr. 4* (Max 24).

Prereq: ART 0331. Colored rendering in various media: pen and ink, pastel, pencil, tempera, wash; portfolio preparation. Laboratory and lecture.

0534. Experimental Art Processes. Cr. 4.

Prereq: ART 0132. Open only to art majors. Lectures, demonstrations by experts from technical, scientific and artistic areas.

0535. Art Processes Laboratory. Cr. 4* (Max. 16).

Prereq: ART 0132, 0232. Open only to art majors. Laboratory, scheduled intermittently, offering one of many techniques not otherwise available in the department. Particular process offered will be listed in Schedule of Classes.

0536. Interior Architecture. Cr. 4* (Max. 24).

Prereq: ART 0336. Design of the human environment as an art form as well as for physical utility. Context limited to working within existing or proposed buildings. Space planning, understanding building systems.

0537. Color Photography. (2,2). Cr. 4* (Max. 12).

Prereq: ART 0239. Theory of color, current color materials and processes with study of historical development of color photography. Practical laboratory and studio work in shooting color transparencies, color negatives, and in color printing. The expressive and emotional qualities of color.

0538. (SPH 0567) Stage Design. Cr. 4* (Max. 8).

Prereq: SPH 0559 and ART 0131. 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.

0539. Experimental Photography. (4,4). Cr. 4* (Max. 12).

Prereq: ART 0239. Application of photography to design elements. Adaptation of standard techniques and their application to the field of experimentation; the development of new techniques.

0540. Photojournalism. (2,2). Cr. 4* (Max. 12).

Prereq: ART 0239. Techniques of journalistic use of photography. The individual news picture, use of available light, and small camera. The picture story, series and sequence in visual communication. Problems of reproduction of photographs. Line and half-tone reproduction.

0541. Life Photography: Portraiture. (4,4). Cr. 4* (Max. 12).

Prereq: ART 0239. Characterization, posing and the control of light, leading toward various styles and modes.

0542. The Art of Color Photography: Projection Media. (4,4). Cr. 4* (Max. 12).

Prereq: ART 0238 or consent of instructor. Four credits of lecture weekly supplemented by demonstration motion pictures and slides. Student efforts will be projected in class and criticism will be part of the course. Students will spend at least four hours weekly in color photography and reference reading.

0543. The Art of Cinematography. (4,4). Cr. 4* (Max. 12).

Prereq: ART 0338. Modern technical and creative skills in cinematography, production of individual films.

0544. Advertising Design. Cr. 4* (Max. 28).

Prereq: ART 0245. Continuation of Art 0245. Commercial illustration, commercial design, layout, typography, key line, and reproduction.

0545. Graphic Arts Techniques. (2,4). Cr. 4* (Max. 12).

Prereq: ART 0245. Contemporary industrial graphic art techniques and procedures presented by workshop demonstration and student projects. Hand type setting, photostat camera work, photograms, offset negative, color key, and offset plate-making. Letterpress and offset printing. Procedural relationships.

0546. Life Photography: Figure. (4,8). Cr. 4* (Max. 12).

Prereq: ART 0239, 0541; open only to art majors, others by consent of instructor. Full figure posing. Control of light in all applications from sculptural to illustrative, ranging from realistic to abstract in interpretation.

0560. Advanced Ceramics. Cr. 4* (Max. 28).

Prereq: ART 0360. Individual development with clay by hand or wheel while dealing with technical aspects of clay and glazes, kiln; slide lectures and laboratory demonstrations.

0562. Advanced Applied Design: Metal. Cr. 4* (Max. 28).

Prereq: ART 0362. Individually directed projects in two- and three-dimensional design media.

0564. Textile Design and Weaving. Cr. 4* (Max. 28).

Prereq: ART 0364. Advanced problems to suit the individual; loom and off-loom instruction and design for weaving.

0565. Advanced Related Fibers. Cr. 4* (Max. 8).

Prereq: ART 0365. Exploration of processes related to work in fibers; type of process to be announced in Schedule of Classes.

0590. Directed Projects: Drawing. Cr. 4* (Undergrad max. 20, grad. max. 40).

Undergrad, prereq: consent of major adviser and chairman; grad, prereq: consent of adviser and graduate officer. Individual problems.

0591. Directed Projects: Painting. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad, prereq: consent of major adviser and chairman; grad, prereq: consent of adviser and graduate officer. Individual problems.

0592. Directed Projects: Sculpture. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad, prereq: consent of major adviser and chairman; grad, prereq: consent of major adviser and graduate officer. Individual problems.

0593. Directed Projects: Design. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad, prereq: consent of major adviser and chairman; grad, prereq: consent of major adviser and graduate officer. Individual problems.

0594. Directed Projects: Advertising Design. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad, prereq: consent of major adviser and chairman; grad, prereq: consent of major adviser and graduate officer. Individual problems.

*Additional credits may be elected in a given quarter with written consent of instructor.

0595. Directed Projects: Printmaking. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0596. Directed Projects: Crafts. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0597. Directed Projects: Photography. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0598. Directed Projects: Industrial Design. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0599. Directed Projects: Interior Architecture. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0607. Advanced Lithography: Plate. (0,9). Cr. 4* (Max. 20).

Prereq: ART 0507. Lithography on plates, transfer paper, black-and-white, and color printing. Paper making on hand operated paper mill.

0621. Sculpture: Non-Figurative. Cr. 4* (Max. 20).

Prereq: ART 0521, 0522; prereq. or coreq: ART 0523. Open only to sculpture majors with B average in sculpture and acceptable portfolio. Professional orientation, advanced concepts and skills. Lecture, laboratory, and critique.

0622. Sculpture: Figurative. Cr. 4* (Max. 20).

Prereq: ART 0521, 0522; prereq. or coreq: ART 0523. Open only to sculpture majors with B average in sculpture and acceptable portfolio. Professional orientation, advanced concepts and skills. Lecture, laboratory, and critique.

0530. Transportation Design. Cr. 4* (Max. 24).

Prereq: 12 credits in ART 0530. Individual and class projects in land or water transportation design from concept to model or comprehensive presentation.

0703. Graduate Drawing. Cr. 4* (Max. 32).

Prereq: ART 0503. Advanced problems in life drawing.

0706. Advanced Printmaking. Cr. 4* (Max. 32).

Prereq: ART 0506. Advanced projects. Experimental media.

0707. Printmaking: Cliche-Verre. Cr. 4* (Max. 32).

Prereq: ART 0607; written consent of instructor. Newly developed technique in printmaking; tools and techniques for graduate studies of the fine print.

0709. Advanced Painting Laboratory. Cr. 4* (Max. 32).

Prereq: ART 0509. Diverse media other than oil or water color; painting ideas relating to the individual's needs.

0710. Advanced Oil Painting. Cr. 4* (Max. 32).

Prereq: ART 0510. Individual projects. Laboratory, lecture, criticism.

0712. Advanced Water Color. Cr. 4* (Max. 32).

Prereq: ART 0512. Still life, landscape, figure composition.

0721. Advanced Non-Figurative Sculpture. Cr. 4-8* (Max. 24).

Prereq: ART 0521. Continuation of Art 0521.

0722. Advanced Figurative Sculpture. Cr. 4* (Max. 32).

Prereq: ART 0522. Continuation of Art 0522.

0728. Photography and Cinematography: Advanced Production. (4,8). Cr. 4 (Max. 16).

Prereq: 12 credits in 0500 level photography courses. History of cinematography and photography, their sociological impacts, past and present; an evaluation of the opportunities of the future; correlating technical skills, functional concepts and creativity.

0730. Graduate Industrial Design. Cr. 4-8* (Max. 36).

Prereq: ART 0530. Specialized work, individual study and comprehensive major project.

0736. Advanced Interior Architecture. Cr. 4* (Max. 32).

Prereq: 12 credits in ART 0536. Continuation of Art 0536. Individual, extended projects involving extensive research and total execution including plans, renderings and models.

0744. Advanced Commercial Design. Cr. 4* (Max. 32).

Prereq: 20 credits in ART 0544. Continuation of Art 0544.

0760. Advanced Ceramics. Cr. 4* (Max. 32).

Prereq: ART 0560. Specific methods of using clay in terms of objects, forms or environments; slide lectures and laboratory demonstrations.

0762. Advanced Metalcraft. Cr. 4* (Max. 32).

Prereq: ART 0562. Continuation of Art 0562.

0764. Advanced Textile Design and Weaving. Cr. 4* (Max. 32).

Prereq: ART 0564. Continuation of Art 0564. More advanced problems in weaving and design for weaving; specialized work, individual study and portfolio preparation.

0765. Advanced Related Fibers. Cr. 4* (Max. 8).

Prereq: ART 0565. Advanced work in application of processes in work with fibers; type of process to be announced in Schedule of Classes.

0798. Seminar in Art. Cr. 3.

Prereq: consent of chairman. Directed reading, research, bibliography.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

*Additional credits may be elected in a given quarter with written consent of instructor.

*Additional credits may be elected in a given quarter with written consent of instructor.

0870. Master of Fine Arts Projects. Cr. 3-4.

Prereq: consent of adviser. Open only to M.F.A. candidates. Execution of specific advanced projects as determined by adviser and M.F.A. candidates advisory committee under Plan C.

0880. Independent Study: Drawing. Cr. 4-8 (Max. 40).

Open only to M.F.A. students. Extended problems in drawing; individual research with twelve to twenty-four hours of laboratory.

0881. Independent Study: Painting. Cr. 4-8 (Max. 40).

Open only to M.F.A. students. Extended problems in painting; individual research with twelve to twenty-four hours of laboratory.

0882. Independent Study: Sculpture. Cr. 4-8 (Max. 40).

Open only to M.F.A. students. Extended problems in sculpture; individual research with twelve to twenty-four hours of laboratory.

0885. Independent Study: Printmaking. Cr. 4-8 (Max. 40).

Open only to M.F.A. students. Extended problems in printmaking; individual research with twelve to twenty-four hours of laboratory.

0898. Master of Fine Arts Seminar. Cr. 1 (Max. 4).

Open only to M.F.A. students. Concepts of art; problems of contemporary art.

**0899. Master's Thesis Research and Direction. Cr. 6*
(12 required).**

Prereq: consent of adviser.

Art History (A H)

0100. Introduction to the Elements of Art. Cr. 4.

Nonhistorical introduction on a comparative basis. Typology of architecture, sculpture, painting.

0110. Survey of Art History I. Cr. 4.

Prehistoric through Greek and Roman.

0111. Survey of Art History II. Cr. 4.

Christian through Renaissance.

0112. Survey of Art History III. Cr. 4.

Baroque through modern.

0214. Survey of Arts of India and Southeast Asia. Cr. 4.

Prereq: A H 0100 or consent of instructor. Major monuments and styles to the nineteenth century.

0215. Survey of Arts of China and Japan. Cr. 4.

Prereq: A H 0100 or equiv. or consent of instructor. Major monuments and styles.

0220. Survey of African, Oceanic, American Indian Art History. Cr. 4.

Major styles of the cultural groups of Africa, pre-conquest Americas, and the Pacific Ocean basin.

0300. Art in the United States. Cr. 4.

Prereq: A H 0112. Art and architecture from Colonial times to the present.

0350. Iconography in Art. Cr. 4.

Major themes and symbols in Christian, Islamic, Hindu and Buddhist art as well as in the arts of Ancient Egypt, the Ancient Near East, Greece, Rome, Africa and Oceania.

0507. Egyptian Art and Archaeology I. Cr. 2.

Prereq: A H 0110. Pre-Dynastic to Roman Occupation.

0508. Egyptian Art and Archaeology II. Cr. 2.

Prereq: A H 0507. Continuation of Art History 0507.

0510. Biblical Archaeology. Cr. 4.

The Bible and archaeology in the light of recent research.

0514. Art of the Ancient Near East. Cr. 4.

Neolithic through Achaemenian art.

0515. Classical Art and Archaeology I. Cr. 4.

Aegean through Hellenistic.

0516. Classical Art and Archaeology II. Cr. 4.

Etruscan and Roman.

0519. African Art I. Cr. 4.

Prereq: consent of instructor. Introduction to the various arts and their use in Sub-Saharan African culture from prehistoric through the arts of Ghana.

0520. African Art II. Cr. 4.

Prereq: A H 0220 or 0519. Arts of Sub-Saharan Africa from Nigeria through Central and South Africa.

0521. Ethnographic Art. Cr. 4.

African, Oceanic, and pre-Columbian art.

0522. Oceanic and American Indian Art. Cr. 4.

Prereq: A H 0220. Polynesia, Micronesia, Melanesia, and Amerindian cultures.

0531. Chinese Painting I. Cr. 4.

Prereq: A H 0215 or consent of instructor. From beginnings through Sung Dynasty.

0532. Chinese Painting II. Cr. 4.

Prereq: A H 0531. From Yuan Dynasty to 1966.

0533. Selected Studies in Chinese Painting. Cr. 4.

Prereq: A H 0532 or consent of instructor. Artistic trends in later Chinese painting.

0534. Arts of Japan I. Cr. 4.

Prereq: A H 0215 or consent of instructor. Development of Japanese painting, sculpture, and architecture from pre-historic times through the Kamakura period.

0535. Arts of Japan II. Cr. 4.

Prereq: A H 0534 or consent of instructor. Development of Japanese painting, architecture, and woodblock prints from the Ashikaga through the Edo period.

0540. Christian Art I. Cr. 4.

Prereq: A H 0111. Early Christian and Byzantine.

0541. Christian Art II. Cr. 4.

Prereq: A H 0540 or consent of instructor. Romanesque and Gothic.

*Additional credits may be elected in a given quarter with written consent of instructor.

0542. Gothic Architecture. Cr. 4.

Prereq: A H 0111. History of Gothic architecture in Europe from its origin in the mid-12th century to the middle of the 16th century.

0543. Survey of Jewish Art (N E 0513). Cr. 4.

Jewish participation in the arts from antiquity to the present.

0551. Renaissance in Italy I. Cr. 4.

Prereq: A H 0111. Thirteenth century to the High Renaissance.

0552. Renaissance in Italy II. Cr. 4.

Prereq: A H 0551 or consent of instructor. The late fifteenth and sixteenth centuries; the Mannerists.

0576. Baroque in Italy, Spain and France. Cr. 4.

Prereq: A H 0112. History of the Baroque movement.

0577. Baroque and Rococo in Germany and Austria. Cr. 4.

Art and architecture of these periods.

0591. Nineteenth Century Painting in Paris. Cr. 4.

Prereq: A H 0112. Nineteenth century Classicism, Romanticism, Realism.

0595. Modern Painting in France. Cr. 4.

Prereq: A H 0591 or consent of instructor. Post-Impressionism and Symbolism to the World War II period.

0597. Modern European Painting Outside France. Cr. 4.

Prereq: A H 0595. Developments in Germany, Holland, Russia, Italy and England.

0600. Art and Architecture in America I (HIS 0628). Cr. 4.

From Jamestown to the Civil War.

0601. Art and Architecture in America II (HIS 0629). Cr. 4.

Prereq: A H 0600. From Lincoln to Woodrow Wilson.

0602. Art and Architecture in America III (HIS 0630). Cr. 4.

Prereq: A H 0601. From Harding to Nixon.

0604. Twentieth Century American Painting. Cr. 4.

Prereq: A H 0300, 0595 or 0597. Major developments in modern American painting from the period of the Armory Show through the art of the Sixties.

0620. Art and Architecture of France, 1715-1815. Cr. 4.

Painting, sculpture, architecture and the decorative arts of France in relation to French literature and history.

0630. Buddhist Art. Cr. 4.

Prereq: A H 0214 or 0215. Development of Buddhist art and iconography.

0640. Art Historiography. Cr. 4.

Prereq: 12 credits in art history. Art historical writings from Pliny to the present.

0648. Art History Pedagogy. Cr. 4.

Prereq: 12 credits in art history. Presentation and teaching of art history, its structure, bibliography and resources.

0680. Museum Practices. (0,20). Cr. 4-8.

Prereq: consent of adviser and participating museum. Open only to majors. On-the-job training in museum research and procedures.

0697. Senior Seminar. Cr. 4 (Max. 12).

Open only to senior art history majors. Research projects.

0701. Museum Internship I. Cr. 4-16 (Max. 16).

Prereq: admission to Museology Program. First year of graduate internship at Detroit Institute of Arts.

0702. Museum Internship II. Cr. 6-10 (Max. 26).

Prereq: A H 0701. Second year of graduate internship at Detroit Institute of Arts.

0710. Cave Art. Cr. 4.

Paleolithic arts of Europe and Asia.

0714. Studies in Ancient Near Eastern Art. Cr. 4.

Prereq: A H 0514. The early first millennium in Western Asia.

0720. Studies in Early Christian Art. Cr. 4.

Prereq: A H 0540. Critical examination of stylistic and iconographic sources; theories of origin.

0725. Studies in American Art. Cr. 4.

Prereq: sequence in American art or consent of instructor. Research in the Archives of American Art.

0730. Studies in African Art. Cr. 4.

Prereq: A H 0520. Concentration in selected cultural areas.

0732. Studies in Oceanic and Amerindian Art. Cr. 4.

Prereq: A H 0522. Concentration in selected cultural areas.

0735. Studies in Asiatic Art. Cr. 4.

Prereq: A H 0215, 0531, 0532, 0534, and 0535, or consent of instructor. Problems in architecture, gardens, ceramics, and painting.

0783. Art Historical Methodology. Cr. 4.

Critical analysis of the formal, iconographic, psychological and economic approaches to art history.

0785. Artistic Theories and Style. Cr. 4.

Artists' theories on art and their influence on style.

0797. Seminar in Art History. Cr. 4* (Max. 12).

Prereq: consent of instructor. Directed readings and research.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

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

Prereq: consent of adviser.

*Additional credits may be elected in a given quarter with written consent of instructor.

BIOLOGY

Office: 210 Science Hall

Chairman: Albert Siegel

Academic Services Officer: Lynne M. Aldrich

Professors

Walter Chavin, Ph.D., David R. Cook, Ph.D., Dominic L. DeGiusti, Ph.D., Stanley K. Gangwere, Ph.D., James M. Jay, Ph.D., Laurence Levine, Ph.D., Lida H. Mattman, Ph.D., Kazutoshi Mayeda, Ph.D., William W. Prychodko, Ph.D., Claude M. Rogers, Ph.D., Harold W. Rossmore, Ph.D., Albert Siegel, Ph.D., William L. Thompson, Ph.D.

Associate Professors

Kuo-Chun Chen, Ph.D., John W. Cosgriff, Jr., Ph.D., David M. DeForest, Ph.D. (Emeritus), W. Eugene Foor, Ph.D., Willis W. Mathews, Ph.D., Jessie L. Metcalf, M.A. (Emeritus), Hiroshi Mizukami, Ph.D., John D. Taylor, Ph.D., Rosario R. Teodoro, Ph.D.

Assistant Professors

Konstantine Cost, Ph.D., Dennis J. Donaher, Ph.D., Chester T. Duda, Ph.D., Robert B. Goldberg, Ph.D., Roman W. Harkaway, M.S., M.D., R. Anton Hough, Ph.D., Richard H. Monheimer, Ph.D., William S. Moore, Ph.D., Curtis J. Swanson, Ph.D., Jerry S. VandeBerg, Ph.D., Melvin Weisbart, Ph.D., Mary Alice Yund, Ph.D.

Adjunct Professors

Thomas J. Curtin, Ph.D., Alfred G. Edward, D.V.M., Samuel B. Horowitz, Ph.D., Stephen T. Kitai, Ph.D., Fred L. Rights, Ph.D.

Adjunct Assistant Professor

Thomas Waring, Ph.D.

DEGREE PROGRAMS

Bachelor of Arts — with a major in biology

Bachelor of Science in Biology

Master of Science — with a major in biology and specializations in general biology, bacteriology, botany, zoology

Doctor of Philosophy — with a major in biology and specializations in bacteriology, botany, zoology

The primary role of the department is the presentation and interpretation of biological systems. The knowledge by which educated man understands himself and his living environment constitutes the core of biological training for the Liberal Arts student and forms the basis for training professional biologists and preprofessional aspirants to related scientific arts.

BACHELOR OF ARTS

Major Requirements — Students contemplating a major program in biology should consult with the undergraduate de-

partmental adviser no later than the beginning of the sophomore year. The major program incorporates all of the regular College Group Requirements.

All students are required to complete Biology 0103, 0140, 0160, and 0220, or their equivalents, before declaring a biology major.

Students must have an over-all grade point average of at least 2.0 (and at least a 2.0 average in previous biology courses) before being admitted to the major program. A grade point average of C (2.0 h.p.a.) must be maintained for all work within the major field. All students in biology are required to take Chemistry 0107 and 0108. An additional thirty-six quarter credits in biology courses are required of the major, including one of two core course sequences: Zoology (Biology 0271, 0507 and 0566) or Botany (Biology 0251, 0507 and 0546). Courses through the 0600 level may be elected providing the proper prerequisites have been taken. No course having "8" as the third digit may be used for departmental major credit. At least eighteen of the thirty-six credits must be taken in residence.

BACHELOR OF SCIENCE

The same introductory and core requirements for the Bachelor of Arts (above) apply for the Bachelor of Science Program Number One. Only French, German and Russian will satisfy the requirement for the foreign language in either B.S. program. Either B.S. program will fulfill professional school requirements. The two programs require completion of Liberal Arts Group Requirements.

Required Cognate Courses for the B.S. Degree — It is required that a biology major include Chemistry 0227, Physics 0215 or 0219, and Mathematics 0212 in his curriculum. Majors should take the placement examination of the Department of Mathematics no later than the second quarter of their sophomore year.



Combined Degree with Dentistry and Medicine — Students majoring in biology who are candidates for a combined degree must complete the same requirements listed above for biology majors except that a minimum of eighteen credits in biology beyond Introductory Biology is required.

Over-Age Credits — A student attempting to complete a biology major after a prolonged period of interruption of his education may find some of the course work in biology is out of date. In this case, the record will be reviewed and the department may require him to fulfill biology course requirements existing at the time of his return.

Bachelor of Science in Biology

Suggested Program One¹

First Year		
<i>Fall Quarter</i>	<i>Winter Quarter</i>	<i>Spring Quarter</i>
BIO 0103 ... 5	BIO 0140 ... 4	BIO 0160 ... 4
CHM 0107 ... 4	CHM 0108 ... 4	CHM 0110 ... 4
Language ² ... 4	ENG 0150 ... 4	English ... 4
	Language ... 4	Language ... 4
13	16	16

Second Year		
MAT 0180 ... 5	MAT 0211 or	CHM 0227 ^a ... 3
or MAT 0211 4	MAT 0212 ... 4	CHM 0228 ... 3
BIO 0220 ... 4	CHM 0226 ... 4	Group Elective 4
Language ... 4	Biology ... 4	Biology ... 3
CHM 0224 ... 4	Group Elective 4	
16-17	16	13

Third Year		
Biology ... 4-7	Biology ... 4-5	Biology ... 4-7
PHY 0213 ... 4	PHY 0214 ... 4	PHY 0215 ... 4
Group Elective 4	Group Elective 4	Group Elective 4
12-15	12-13	12-15

Fourth Year		
BIO 0594 ... 1	BIO 0594 ... 1	BIO 0594 ... 1
BIO 0596 ... 2	BIO 0596 ... 2	Biology or
Biology or	Biology or	Elective ... 10
Elective ... 4	Elective ... 8	Group Elective 4
Group Elective 8	Group Elective 4	
15	15	15

¹This program requires completion of core courses as in the Bachelor of Arts program.

²Language: French, German, or Russian required.

^aRequired for pre-medicine. Certain medical schools also require Chemistry 0410, Quantitative Analytical Chemistry, three credits, and strongly recommend physical chemistry.

Special Major in Biophysics

Major Requirements for Students Specializing in Biophysics

1. Students contemplating a major program in biophysics should consult with the undergraduate departmental adviser at the beginning of the freshman year or when transferring from outside the University or from another curriculum within the University. *The major program incorporates all the regular college group requirements including a foreign language for the B.S. degree.* Students are urged to include the departmental core subjects in the course of study.

2. Biology 0103, 0140, 0160, 0220, 0616, and an additional twenty quarter credits are required. No course having "8" as the third digit may be used for departmental major credit.

3. Mathematics 0211 through 0215 are required.

4. Physics 0217 through 0219 and an additional four credits in physics are required.

5. Chemistry 0107, 0108, 0110, 0224, 0226, 0227, 0410, 0540, 0542 and 0544 are required.

6. In the senior year, students should enroll in at least two quarters of Biology 0596.

Bachelor of Science in Biology

Suggested Program Two

The purpose of this *undergraduate biophysics specialty* is to encourage students to obtain a broader background in physico-chemical sciences for advanced studies in biophysics as well as in biology.

Students are strongly urged to complete the departmental core requirements.

First Year		
<i>Fall Quarter</i>	<i>Winter Quarter</i>	<i>Spring Quarter</i>
BIO 0103 ... 5	BIO 0140 or	BIO 0140 or
CHM 0107 ... 4	BIO 0160 ... 4	BIO 0160 ... 4
ENG 0150 ... 4	English ... 4	Group Elective 4
Language ... 4	CHM 0108 ... 4	CHM 0110 ... 4
	Language ... 4	Language ... 4
17	16	16

Second Year		
MAT 0180 ... 5	MAT 0211 or	MAT 0212 or
or MAT 0211 4	MAT 0212 ... 4	MAT 0213 ... 4
CHM 0224 ... 4	CHM 0226 ... 4	CHM 0228* ... 3
Language ... 4	CHM 0227 ... 3	Elective ... 4
BIO 0220 ... 4	Group Elective 4	Group Elective 4
16-17	15	15

* Required for pre-professional schools.

Third Year

PHY 0217 ... 5	PHY 0218 ... 5	PHY 0219 ... 5
MAT 0213 or MAT 0214 ... 4	MAT 0214 or MAT 0215 ... 4	MAT 0215 or Elective ... 4
CHM 0410 ... 3	Biology Elective ... 4	BIO 0616 ... 4
Biology Elective ... 4		13
16	13	

Fourth Year

CHM 0540 ... 3	CHM 0542 ... 3	CHM 0544 ... 3
BIO 0594 ... 1	BIO 0594 ... 1	BIO 0594 ... 1
BIO 0596 ... 2	BIO 0596 ... 2	Elective ... 6
Physics Elective ... 4	Group Elective 4	Group Elective 4
Group Elective 4	Group Elective 4	14
14	14	

Honors Program

for Liberal Arts students only

Honors students in the Department of Biology are required to take the following courses:

1. *Honors section of the introductory courses.* (Biology 0103, 0140, 0160, and 0220). Regular sections of these courses may not be substituted.
2. *Biology core courses for the B.S. and B.A. degrees.*
3. *Biology 0590 (Honors Research in Biology).* A research project under the direction of a member of the graduate faculty is required. Students should select and obtain the permission of this faculty member during the last term of the sophomore year, upon consultation with their honors adviser. This course is open only to junior or senior biology majors in Liberal Arts Honors Program.
4. *Biology 0595 (Senior Seminar: Honors Program).* A weekly seminar given in conjunction with the Graduate Seminar (Biology 0895) of the department.

Upon reaching senior status, honors students, in consultation with the honors adviser, commence preparation of a terminal essay, satisfactory completion of which assures them of honors graduation, providing their performance in the required courses is at honors level. The essay's acceptability is determined by the chairman, the honors adviser and appropriate faculty. Upon completion of the essay students receive three credits for Biology 0599 (Terminal Honors Essay).

Advising will be accomplished by the Biology Department adviser, in consultation with the honors adviser.

Students must have an over-all honor point average of at least 3.1 and an honor point average of at least 3.1 in the major to obtain honors graduation certification. *Students with an over-all average of 3.5 may also be accepted in this program without having had introductory honors courses.*

MASTER OF SCIENCE

Plan A — Thirty-six credits in course work plus a thesis.

Plan C — Forty-five credits in course work, approximately half of which are from a prescribed core program.

Admission — Applicants are expected to have demonstrated proficiency in the baccalaureate program (honor point average of 2.6 or better) including adequate preparation in biology (major recommended) and supporting courses in chemistry, physics, and mathematics. Normally the entering student will be expected to have fulfilled the equivalent of the requirements for the bachelor's degree at Wayne State and to satisfy any deficiencies by examination or course work before becoming a candidate for the advanced degree.

The Graduate Record Examination and the Advanced Test in Biology are required as counseling aids in preparing the student's plan of study. Prospective graduate majors should consult the Chairman of the Departmental Committee on Graduate Study prior to registration.

Candidacy must be established by the time eighteen credits have been earned. Applicants become degree candidates only upon recommendation by the graduate adviser with the approval of the departmental chairman.

Degree Requirements — Courses required will vary with preparation and fields of specialization. These will be determined by the student's graduate adviser with approval of the department chairman. *Under Plan A*, twelve credits of the required forty-eight must be in original laboratory or field research under the direction of the student's major professor. A final oral examination is required based on the candidate's course work and research. Students enrolled in *Plan C* must elect one course from each of the following six areas: ecology, statistics, genetics and development, evolution, biophysics, and physiology. At least two of the elections must be courses with laboratory sections.

DOCTOR OF PHILOSOPHY

Admission — In addition to the requirements of the Graduate Division, the applicant must present a bachelor's or master's degree with a major in biology or some subdivision thereof. Course work should include the fields of genetics, morphology, physiology, and supporting courses in physics, chemistry, and mathematics.

Applicants must take the Graduate Record Examination and the Advanced Test in Biology and be accepted by the Biology Department Graduate Admissions Committee.

Degree Requirements — In addition to those stated on page 199, the language requirements should be completed by the second year of graduate work and the final qualifying examination completed at least one year before the final doctoral examination. Each graduate student will be expected to serve at least three quarters as a teaching assistant in the department. Continuance in the doctoral program depends upon satisfactory progress as determined by the student's advisor committee with the departmental chairman as an ex-officio member.

Assistantships and Scholarships — Teaching and research assistantships and scholarships are available to qualified graduate students. Inquiries and applications should be directed to the Chairman, Department of Biology.

BIOLOGY DEPARTMENT NUMBERING SYSTEM

The first digit of all courses is a zero.

The second digit conforms to the University course numbering system.

The third digit indicates subject matter as follows:

- 0 and 1 Courses equally applicable to all subdivisions of biology.
- 2 and 3 Courses specifically concerned with the field of bacteriology.
- 4 and 5 Courses specifically concerned with the field of botany.
- 6 and 7 Courses specifically concerned with the field of zoology.
- 8 Courses not open to biology majors; see specific courses for other restrictions.
- 9 Courses with a third digit of 9 are seminars and directed study courses carrying major credit in the department.

COURSES OF INSTRUCTION¹ (BIO)

0100. Man and His Environment. Cr. 3.

Not for major credit. Current treatment of the relationship between man and his constantly changing environment.

0103. Introductory Biology. (4,4). Cr. 5.

One hour discussion included. Must be satisfactorily completed before declaration of biology as a major. Factual and conceptual bases of modern biology, primarily at the cellular level.

0140. Plant Biology. (3,4). Cr. 4.

Prereq: BIO 0103. Must be satisfactorily completed before declaration of biology as a major. Continuation of Biology 0103, stressing special plant functions, the functional morphology of representatives of the plant kingdom, the bases of modern plant taxonomy.

0141. Plant Biology for Non-Majors. Cr. 3.

Prereq: BIO 0103. Special plant functions, the functional morphology of representatives of the plant kingdom, the bases of modern plant taxonomy; demonstration-discussion sections illustrating selected lecture material.

0160. Animal Biology. (3,4). Cr. 4.

Prereq: BIO 0103. Must be satisfactorily completed before declaration of biology as a major. Morphology, functions, development, phylogeny, and ecological relationships of the principal animal types.

0161. Animal Biology for Non-Majors. Cr. 3.

Prereq: BIO 0103. Morphology, functions, development, phylogeny, and ecological relationships of the principal animal types and demonstration-discussion sections illustrating selected lecture material.

0187. Anatomy and Physiology. (4,7). Cr. 6.

Prereq: BIO 0103 and written consent of major adviser and biology adviser. Open only to medical technology, occupational therapy, special education, and family and consumer resources students. Systems, functions, organization of the mammal; emphasis on humans. Detailed study of skeletal and muscular systems and life functions: digestion, circulation, respiration, reproduction, growth.

0188. Human Anatomy and Physiology I. (3,4). Cr. 4.

Prereq: BIO 0103. Open only to College of Nursing students. Structures and functions of human body. Life processes, cells, tissues, skeletal, muscular and nervous systems of human organism.

0189. Human Anatomy and Physiology II. (3,4). Cr. 4.

Prereq: BIO 0188. Open only to College of Nursing students. Continuation of Biology 0188. Digestive, excretory, circulatory, endocrine, special sense systems of human organism.

0220. Introductory Microbiology. (3,4). Cr. 4.

Prereq: BIO 0103. Stresses primarily the bacteria and their basic biology; the relationship of microorganisms to other living things including their role in disease; laboratory exercises paralleling the above principles.

0221. Introductory Microbiology for Non-Majors. Cr. 3.

Prereq: BIO 0103. Stresses primarily the bacteria and their basic biology; the relationship of microorganisms to other living things including their role in disease; includes demonstration-discussion sections illustrating selected lecture material.

0240. Plants and Human Affairs. Cr. 3.

The role of plants in man's well-being and in the past development and present maintenance of his civilization.

0250. Cryptogamic Botany. (2,6). Cr. 4.

Prereq: BIO 0140. Morphology, taxonomy, and development of algae and bryophytes.

0251. Plant Morphology. (2,6). Cr. 4.

Prereq: BIO 0140. Anatomy and general morphology of tracheophytes.

0271. Comparative Vertebrate Zoology. (3,9). Cr. 6.

Prereq: BIO 0160. Morphological development of chordates. Dissection of vertebrate types to understand interrelations of adult structures in terms of inheritance, embryology, phylogeny.

0281. Trees and Shrubs. (2,2). Cr. 3.

Identification and distribution of local woody plants. Field trips. For students without formal training in botany.

0282. Local Flora. (2,2). Cr. 3.

Identification of native ferns and flowering plants in the Detroit area. Lecture, laboratory, field trips. For students without formal training in botany.

0287. Human Heredity. Cr. 3.

Basis of Mendelian genetics as applied to man. Statistical analysis of human populations; biochemical genetics in the studies of inborn errors of metabolisms. Current areas of research in human genetics; eugenics — the problems of "genetic engineering."

¹See page 536 for interpretation of numbering system, signs and abbreviations.

0390. Directed Study. Cr. 1-6 (Max. 6).

Prereq: written consent of adviser and instructor must be arranged during quarter preceding election of course. Primarily for biology majors who wish to continue in a field beyond that covered in regular courses. In every case the course must be carefully planned.

Undergraduate and Graduate Courses

0500. Radiobiology. Cr. 3.

Prereq: 24 credits in biology. Effects of radiation on living organisms; basic theoretical concepts, techniques and applications of radiation (isotopes, x-ray).

0501. Methods in Radiobiology. (0,15). Cr. 5.

Prereq. or coreq: BIO 0500, consent of instructor. Laboratory experiments with living animals and plants. Use of detectors and scalers. Radioautography, radiochromatography.

0502. Biological Literature. Cr. 3.

Prereq: 24 credits in biology. Types of biological literature; classifying, abstracting, editing. Preparation of research manuscripts; editorial policies of standard journals. Field trips to science libraries.

0503. History of Biology. Cr. 3.

Prereq: 24 credits in biology. Development of science and philosophy of biology from earliest written records to the present.

0504. Biometry. (3,2). Cr. 4.

Prereq: 16 credits in biology and a knowledge of algebra. Quantitative methods in biology. Statistical approach to data analysis and the design of experiments. Laboratory section permits actual analysis of selected statistical problems.

0505. Microtechnique. (2,9). Cr. 5.

Prereq: BIO 0251 or 0271 and CHM 0227. Light microscopy. Materials for structural and histochemical study.

0506. General Cytology. (3,6). Cr. 5.

Prereq: CHM 0210; 24 credits in biology; PHY 0215 recommended. Subcellular components, their structure, behavior, and function in generalized and differential cells as related to growth, reproduction, specialization, disease. Emphasis on results from light and electron microscopy and cytochemistry.

0507. Genetics. Cr. 4.

Prereq: BIO 0140, 0160, or 0220. Inheritance in plants and animals; experimental and statistical evidence from which natures of genetic mechanisms are deduced.

0508. Methods in Genetics. (1,6). Cr. 3.

Prereq: BIO 0507. Population genetics, classic Mendelian experiments; effects of mutations on physiological processes; production of mutations by various methods; cytological studies of chromosomal breakages.

0509. Evolution. Cr. 4.

Prereq: BIO 0507. Evidence for organic evolution; the nature and consequences of the process.

0510. Limnology I. (3,4). Cr. 4.

Prereq: BIO 0140 and 0160; one course in chemistry or physics. Physical and chemical properties of aquatic environment. Biotic communities and comparison of various aquatic environments. Use of limnological equipment. Field work involving aquatic habitats.

0511. Biogeography. Cr. 4.

Prereq: BIO 0140 and 0160. Introductory study of principles and patterns of plant and animal distribution.

0512. Bioecology Lecture. Cr. 3.

Prereq: 18 credits in biology; BIO 0555 recommended. Structure and distribution of plant and animal communities; environmental factors which influence them.

0513. Biological Fine Structure. Cr. 3.

Prereq: 24 credits in biology. An advanced study of cellular structure as revealed by the electron microscope and other means. Correlation between structure and function at the molecular level.

0514. Bioecology Laboratory. (0,6). Cr. 2.

Prereq. or coreq: BIO 0512; 18 credits in biology. Methods and techniques of field and laboratory work in bioecology.

0515. Biology of Laboratory Animals. Cr. 3.

Prereq: BIO 0160, 0220 or consent of instructor. Animal species commonly used as subjects of research. Establishing minimum standards of care and responsibilities for the investigator using animals. Federal Laws 89-544 and 91-579 and their enforcement.

0516. Laboratory: Biology of Laboratory Animals. (0,4). Cr. 2.

Prereq: BIO 0515 and consent of instructor. Techniques used in care, feeding, restraint and production of laboratory animals.

0517. Systematic Biology. Cr. 3.

Prereq: BIO 0140 and 0160. History and philosophy of classification; kinds of data used to achieve a modern classification.

0518. Field Investigations in Biology. Cr. 1-6 (Max. 6).

Prereq: 18 credits in biology, consent of instructor. Field studies of one to eleven weeks, emphasizing biological principles and techniques demonstrated in the field.

0519. Principles of Natural Resource Management. (2,4). Cr. 3.

Prereq: BIO 0512 and consent of instructor. Principles, trends, and current methods used for managing and otherwise maintaining our natural resources.

0523. Sanitary Bacteriology. (2,6). Cr. 4.

Prereq: BIO 0220 and CHM 0226. Microbiology of air, water, sewage; techniques for enumerating bacteria in water, sewage, milk; principles of disinfection. Field trips.

0525. Food Microbiology. (3,6). Cr. 5.

Prereq: BIO 0220. Techniques of characterizing the total microbial flora and individual groups of microbes in foods; sources and significance of microbes in foods; role in food spoilage; theories of food preservation; parameters of foods that affect the microbial flora; cause, prevention, control of food poisoning; thermal death time considerations in canning; physiology of thermophilic and psychrophilic growth.

0526. Pathogenic Bacteriology I. (3,6). Cr. 5.

Prereq: BIO 0220 and CHM 0226. Introduction to characteristics of aerobic and anaerobic bacteria of the vertebrate host; emphasis on those concerned with endogenous infections; methods of isolation and cultivation mechanisms in pathogenesis.

0530. Aquatic Microbiology. (2,5). Cr. 3.

Prereq: 7 credits in microbiology or consent of instructor. Microorganisms found in natural aquatic environments and their contribution to the functioning of aquatic ecosystems.

0531. Immunology. Cr. 3.

Prereq: BIO 0220 and CHM 0226. Antibody formation, antigen structure, antigen-antibody reactions.

0532. Serology. (1,6). Cr. 3.

Prereq: BIO 0220; prereq. or coreq: BIO 0531. Practice in various experimental methods used for stimulation of antibody production; "in vitro" titration of antibodies.

0543. Mycology. (2,6). Cr. 4.

Prereq: BIO 0140. Fundamentals of morphology, taxonomy, and physiology of fungi.

0546. Plant Physiology. (2,6). Cr. 4.

Prereq: BIO 0140; two courses in general chemistry or equiv. Physiology in relation to form in the intact plant; emphasis on growth and development, nutrition, water economy, plant-soil interactions, and translocation. Laboratory experiments demonstrating classical methodology and modern techniques employing tissue cultures and isotopic tracers to elucidate plant functions.

0550. Plant Development. (3,4). Cr. 4.

Prereq: BIO 0140, 0507 and consent of instructor. Control mechanisms in plant development, environmental and hormonal influences on germination, growth and differentiation, dormancy, and senescence.

0555. Systematic Botany. (2,6). Cr. 4.

Prereq: BIO 0140. Principles and methods of taxonomy and identification of native vascular plants.

0560. Invertebrate Zoology. (3,6). Cr. 5.

Prereq: BIO 0160. Comparative and functional morphology, embryology, physiology and evolution.

0561. Vertebrate Embryology. (3,6). Cr. 5.

Prereq: BIO 0271. Gametogenesis and fertilization; descriptive and analytical embryology of the sea urchin and amphibians; reproductive physiology and descriptive embryology of birds and mammals including man. Laboratory studies of sea urchin, frog and chick development.

0562. Analysis of Development. (3,6). Cr. 5.

Prereq: BIO 0507, 0561, 12 credits in chemistry and consent of instructor. Organization of germ cells and embryonic development; control of growth and development by genetic and other factors. Illustrated by experimentation with available living material.

0563. Vertebrate Histology. (3,6). Cr. 5.

Prereq: BIO 0271. Characteristics and identification of normal mammalian tissues. Micro-anatomy of the mammal. Functional interpretation of micro-structure.

0565. Natural History of Invertebrates. (2,6). Cr. 4.

Prereq: BIO 0140 and 0160; BIO 0560 recommended. Systematics, life histories, and ecology of invertebrate animals, exclusive of protozoa, parasitic worms, and insects. Field trips.

0566. Vertebrate Physiology. (3,6). Cr. 5.

Prereq: CHM 0104, BIO 0271. Introduction to physiology at the molecular, cellular and organ levels; organ systems of vertebrates; laboratory exercises demonstrating physiological phenomena of nerves, muscles, blood circulation, osmotic and ionic regulation, digestion, respiration and excretion.

0567. Endocrinology. Cr. 4.

Prereq: BIO 0561, 0566. Functional evolution of the chemoregulatory mechanisms in vertebrates, physiology and biochemistry of hormones with emphasis on interhormonal relationships in metabolism maintenance of homeostasis, growth, development. Endocrinopathies.

0568. Methods in Endocrinology. (0,15). Cr. 5.

Prereq: consent of instructor; prereq. or coreq: BIO 0567. Experiments demonstrating hormonal action "in vitro" and "in vivo," utilizing surgery, hormone therapy, fluorometry, chromatography, ion exchange, and radioisotopes.

0569. Animal Behavior. Cr. 4.

Prereq: 24 credits in biology. Function, biological significance, causation, and evolution of species-typical behaviors which are a part of the animal's behavioral repertoire under natural conditions.

0570. Natural History of Vertebrates. (2,6). Cr. 4.

Prereq: BIO 0271. Phylogeny of vertebrates as illustrated by their ecology and life history. Field trips.

0571. Paleontology of Vertebrates. (3,3). Cr. 4.

Prereq: BIO 0271. Morphology, phylogeny, evolution, paleoecology, and paleogeographic distribution of vertebrates. One field trip.

0572. Ornithology. (2,6). Cr. 4.

Prereq: BIO 0570. Morphology, systematics, ecology, evolution, physiology and behavior of birds.

0573. Mammalogy. (3,3). Cr. 4.

Prereq: BIO 0570. Systematics, geographical distribution, ecology, adaptive radiation, patterns of growth and reproduction, physiology. Field trips.

0574. Insect Biology I: Systematics and Morphology. (2,6). Cr. 4.

Prereq: BIO 0160. The systematics, classification, and functional morphology of insects, together with methods of collection and study of insect specimens. Field trips.

0575. Ichthyology. (3,3). Cr. 4.

Prereq: BIO 0570. Systematics, geographic distribution, anatomy, ecology, population dynamics and environmental relations; field trips.

0576. General Protozoology. (3,9). Cr. 6.

Prereq: BIO 0160; BIO 0560 recommended. Phylogeny, morphology, life history of protozoa. Emphasis on free living forms.

0577. Parasitic Protozoa. (2,4). Cr. 3.

Prereq: BIO 0576 or 0578. Morphology, life cycles, taxonomy of parasitic protozoa emphasizing forms in both man and animals; specialized methods of culture diagnosis and control of parasitic protozoa.

0578. Biology of Parasitism I. (3,9). Cr. 6.

Prereq: BIO 0160. Parasitism throughout the animal phyla. Morphology, life history, methods of transmission and control of parasites.

0579. Animal Behavior Laboratory. (0,9). Cr. 3.

Prereq. or coreq: BIO 0569; consent of instructor.

0590. Honors Research in Biology. Cr. 4 (Max. 8).

Prereq: acceptance in Biology Honors Program. Open only to junior or senior biology majors. Consent of department Honors

adviser and instructor must be arranged during quarter preceding election of the course. Research project.

0594. Senior Seminar for Bachelor of Science Programs. Cr. 1 (Max. 3).

Prereq: senior standing and written consent of adviser. Not a requirement for the Bachelor of Science degree. Aspects of current biological research presented by well-known speakers.

0595. Senior Seminar: Honors Program. Cr. 1 (Max. 3).

Prereq: consent of adviser; completion of core courses and a minimum of 4 credits in BIO 0590. Open only to Honors students in biology.

0596. Senior Research for Bachelor of Science Programs. Cr. 2 (Max. 4).

Prereq: senior standing and written consent of instructor and biology adviser. Not a requirement for the Bachelor of Science degree. Original research under direction of graduate staff.

0599. Terminal Essay: Honors Program. Cr. 3.

Prereq: consent of department and Honors advisers; senior standing and BIO 0590. A course involving preparation of a terminal essay, satisfactory completion of which assures Honors graduation, providing performance in preceding Honors courses have been at Honors level.

0600. Cell Physiology I. (2,6). Cr. 4.

Prereq: PHY 0214; BIO 0220, 0546 or 0566; CHM 0226 or consent of instructor. Molecular and submolecular design, physico-chemical features which provide the basis for interpretation of cell function.

0602. Biological Instrumentation. (2,0 or 4). Cr. 2 or 4.

Prereq: senior or graduate standing in biology. Theory and use of physico-chemical instruments in biological sciences.

0604. Methods in Microbial Genetics. (1,6). Cr. 3.

Prereq: BIO 0608 or 0708. Laboratory work will give instruction in the critical employment of basic techniques and methods in the investigation of genetics at the molecular and cellular levels. Use of those microorganisms such as fungi, bacteria and bacteriophages, which make them especially appropriate for the study of the fundamental hereditary mechanisms.

0605. Techniques in Electron Microscopy. (2,6). Cr. 4.

Prereq: BIO 0513 and written consent of instructor. Prepares students to use these techniques in present or future research; enables students to better evaluate the numerous publications which use these techniques.

0607. Human Genetics. Cr. 3.

Prereq: BIO 0507. Mechanisms of human inheritance in individuals, families, and populations. Statistical analyses of gene frequencies. Sampling methods and data procurement. Population predictions. Cytogenetics and biochemical determination of the phenotype.

0608. Genetics of Microorganisms. Cr. 3.

Prereq: BIO 0507. Principles and current progress in genetics at the molecular and cellular levels, emphasizing features of microorganisms appropriate for the study of the fundamental mechanisms concerning recombination, replication, metabolic functioning.

0609. Population Genetics. Cr. 4.

Prereq: BIO 0507 and MAT 0180 or equiv. The genetic structure of populations and relationship to organic evolution.

0610. Biosynthesis and Metabolism. Cr. 4.

Prereq: BIO 0140 and 0160; CHM 0224. Biosynthesis and metabolism of proteins, carbohydrates, lipids, steroids, amino acids and nucleic acids. The basic principles of enzyme kinetics in living systems.

0615. Limnology II. (3,4). Cr. 4.

Prereq: BIO 0510. The concept and measurement of productivity in aquatic environment. The use of models in production ecology. Stream limnology and paleolimnology. Biotic communities will be studied in the field and laboratory.

0616. Introductory Biophysics. (3,3). Cr. 4.

Prereq: differential calculus, one year of chemistry or physics, one year of biology and consent of instructor. The physico-chemical bases of the molecular structure and function of cellular constituents.

0620. General Bacteriology. Cr. 4.

Prereq: BIO 0220 or consent of instructor; a course in organic chemistry. General bacteriological phenomena with emphasis on ideas, mechanisms and fundamental principles.

0630. Pathogenic Bacteriology II. (3,6). Cr. 5.

Prereq: BIO 0526 or consent of instructor. Advanced pathogenesis and growth requirements of disease-producing bacteria, with emphasis on fastidious species. Designed for those who plan to work in clinical laboratories or conduct research involving pathogens.

0635. Microbial Ecology. Cr. 3.

Prereq: 12 credits in bacteriology. Ecologic relationships between microorganisms and higher forms in soils, the marine environment, the bovine rumen, insects, and in petroleum fields.

0636. Microbial Ecology Laboratory. (0,6). Cr. 2.

Prereq. or coreq: BIO 0635 or 0735. Isolation and quantitation of the microbial flora and fauna of soil and river water with emphasis upon the propagation, taxonomy, and characteristics of the bacterial autotrophs with respect to their ecologic parameters. The isolation, propagation, and characterization of decomposers of recalcitrant molecules.

0645. Aquatic Plants. (3,3). Cr. 4.

Prereq: BIO 0140. The habitat, physiology and morphology of aquatic plants both in lecture and in laboratory-field sessions, with emphasis on vascular hydrophytes.

0662. Physiological Ecology. Cr. 3.

Prereq: BIO 0512, or consent of instructor. Physiological responses of individual organisms and populations to their environment; growth of individuals and populations, regulation of internal environment in poikilothermic and homoiothermic organisms, tropisms and taxes.

0666. Neurophysiology. Cr. 4.

Prereq: BIO 0566 and consent of instructor; prereq. or coreq: CHM 0662. Physiology and biophysics of neuronal control systems.

0667. Comparative Physiology. (3,0-6). Cr. 3 or 6.

Prereq: BIO 0566; organic chemistry recommended. Function in the animal phyla; general principles of physiology; variety of physiological responses of animals to their environment. "In vivo" or "in vitro" experiments with vertebrates and invertebrates, involving muscle function, osmotic and ionic regulation, cardiovascular phenomena, thin-layer chromatography of steroids and physiological adjustment to temperature. (Formerly Biology 0766.)

0675. Insect Biology II: Distribution and Behavior. (2,6). Cr. 4.
Prereq: BIO 0574. The behavior, life history, ecological and paleontological distribution, and phylogeny of insects. Field trips.

0676. Insect Biology III: Insects of Medical Importance. (2,6). Cr. 4.

Prereq: BIO 0675 or consent of instructor. Morphology, systematics, ecology and life history of arthropods which are vectors of disease or pests of man. Field trips.

0678. Biology of Parasitism II. (3,9). Cr. 6.

Prereq: BIO 0578. Continuation of Biology 0578 with emphasis on the more advanced aspects of parasitism.

†0680. Recent Advances in Biology I. Cr. 9.

Course runs from September to June. Credit only on satisfactory completion of entire ten-month course. Prereq: acceptance by Institute Director as specified by National Science Foundation. High school biology teachers in metropolitan Detroit area only.

†0682. Recent Advances in Biology II. Cr. 9.

Course runs from September to June. Credit only on satisfactory completion of entire ten-month course. Prereq: BIO 0680; acceptance by Institute Director as specified by National Science Foundation. High school biology teachers in metropolitan Detroit area only.

†0683. Recent Advances in Biology III. Cr. 9.

Course runs from September to June. Credit only on satisfactory completion of entire ten-month course. Prereq: BIO 0682; acceptance by Institute Director as specified by National Science Foundation. High school biology teachers in metropolitan Detroit area only.

0685. Human Physiology. Cr. 2.

Prereq: BIO 0566. Study of systems; circulatory, endocrine, digestive; application to human functions. (Formerly Biology 0665.)

0701. Cell Physiology II. (2,6). Cr. 4.

Prereq: BIO 0600 and consent of instructor. Specific attributes of macro-molecular design in living substance which direct, organize, and determine cell function. Contemporary laboratory experiments using advanced techniques.

0703. Gene Structure and Function. Cr. 4.

Prereq: BIO 0507 and BIO 0616 or CHM 0660, or consent of instructor. A detailed analysis of the synthesis, structure and function of genes in procaryotes and eukaryotes.

0704. Methods of Microbial Genetics. (1,6). Cr. 3.

Prereq: BIO 0608 or 0708 and written consent of instructor. Critical employment of basic techniques and methods in investigation of genetics at the molecular and cellular levels. Use of those microorganisms, such as, fungi, bacteria and bacteriophages especially appropriate for study of fundamental hereditary mechanisms.

0706. Advanced Electron Microscopy. (2,6). Cr. 4.

Prereq: BIO 0605, written consent of instructor. Continuation of Biology 0605. Handling, cleaning, and alignment procedures required to obtain optimum resolution and maximum efficiency while employing the electron microscope. (Formerly Biology 0606.)

0707. Physiological Genetics. Cr. 3.

Prereq: BIO 0507. Physical and chemical properties of the genetic material; the fundamental mechanisms concerned with its replication, function, mutation, recombination and regulation; molecular basis of evolution.

0708. Genetics of Microorganisms. (3,3). Cr. 3.

Prereq: BIO 0507. No credit after Biology 0608. Principles and current progress in genetics at the molecular and cellular levels, emphasizing those features of microorganisms appropriate for the study of the fundamental mechanisms concerning recombination, replication, metabolic functioning. Three hours of field work.

0709. Population Genetics. (4,3). Cr. 4.

Prereq: BIO 0507 and MAT 0180 or equiv. The genetic structure of populations and the relationship to organic evolution. Three hours of field work.

0710. Evolution. Cr. 4.

Prereq: BIO 0271 and 0507. Evidence for organic evolution; the nature and consequences of the process of natural selection.

0713. Biological Fine Structure. (3,3). Cr. 3.

Prereq: 24 credits in biology. Cellular structure as revealed by the electron microscope and other means. Correlation between structure and function at the molecular level. Three hours of field work.

0714. Histogenesis. Cr. 3.

Prereq: BIO 0513, 0713, or 0563; and 0561. Formation of sub-cellular components leading to cell differentiation in plants and animals. Tissue formation as a result of cell movement, behavior and communication. Emphasis on specialized structure and function.

0715. Limnology II. (3,4). Cr. 4.

Prereq: BIO 0510. Composition and ecology of aquatic communities; pelagic, littoral, profundal and lotic; standing crops, productivity and energy considerations. Field trips.

0716. Biophysics I. Cr. 3.

Prereq: BIO 0616 or equiv. Biophysical aspects of life; molecular biophysics, thermodynamics of macromolecules, excited states in biology, information transport, and molecular aspects of regulation.

0718. Biophysics II. Cr. 3.

Prereq: BIO 0716. Continuation of Biology 0716. Advanced treatment of excited states and information theory in biology.

0720. Physiology of Bacteria. Cr. 4.

Prereq: BIO 0620 and biochemistry. Cell structure, chemistry and function; mechanisms of biochemical changes during bacterial growth and metabolism.

0731. Comparative Immunology. Cr. 3.

Prereq: BIO 0507 and 0531, or consent of instructor. Genetical, developmental and ecological aspects of the immune response in microorganisms, plants and animals.

0732. Advanced Pathogenic Bacteriology. (3,6). Cr. 5.

Prereq: BIO 0526 or consent of instructor. The pathogenesis and growth requirements of disease producing bacteria, with emphasis on fastidious species. Designed for those who plan to work in clinical laboratories or conduct research involving pathogens. Three hours of field work.

0735. Microbial Ecology. Cr. 3.

Prereq: 12 credits in bacteriology. Ecologic relationships between microorganisms and higher forms in soils, the marine environment, the bovine rumen, insects, and in petroleum fields. Three hours of field work.

0736. Microbial Ecology Laboratory. (0,6). Cr. 2.

Prereq. or coreq: BIO 0635 or 0735. Isolation and quantitation of the microbial flora and fauna of soil and river water with emphasis on the propagation, taxonomy, and characteristics of the bacterial autotrophs with respect to their ecologic parameters. Isolation, propagation, and characterization of decomposers of recalcitrant molecules.

0743. Genetics and Development of Fungi. (2,0-4). Cr. 2 or 4.

Prereq: BIO 0507 or 0543. Well known representatives in each major group of fungi. Laboratory work includes experiments on mutagenesis, complementation, heterokaryosis, tetrad analysis, and isolation of a few specific gene-determined end-products.

0746. Molecular Plant Physiology. Cr. 4.

Prereq: BIO 0546 or equiv. and consent of instructor; one course in organic chemistry. Autotrophic plants at the molecular level with emphasis on photosynthesis, nitrate and sulfate reduction, and the functions of other inorganic metabolites.

0747. Advanced Plant Physiology. (2,6). Cr. 4.

Prereq: BIO 0546 and one course in organic chemistry. Growth and development of higher plants. Emphasis on environmental influences and growth-controlling chemical factors.

0762. Analysis of Development. (3,6). Cr. 5.

Prereq: BIO 0507, 0561, 12 credits in chemistry and written consent of instructor. Organization of germ cells and embryonic development; control of growth and development by genetic and other factors. Illustrated by experimentation with available living material. Three hours of field work.

0765. Neurophysiology. (4,3). Cr. 4.

Prereq: BIO 0566; prereq. or coreq: CHM 0662 and written consent of instructor. Physiology and biophysics of neuronal control systems. Three hours of field work.

0767. Comparative Physiology. (3,9). Cr. 3 or 6.

Prereq: BIO 0566. Organic chemistry recommended. Function in the animal phyla to elucidate general principles of physiology, illustrate the great variety of physiological responses of animals to their environment. "In vivo" or "in vitro" experiments, with vertebrates and invertebrates, involving muscle function, osmotic and ionic regulation, cardiovascular phenomena, thin-layer chromatography of steroids and physiological adjustment to temperature.

0768. Endocrinology. (4,3). Cr. 4.

Prereq: BIO 0561 and 0566. Functional evolution of the chemoregulatory mechanisms in vertebrates. The physiology and biochemistry of hormones with emphasis on interhormonal relationships in metabolic maintenance of homeostasis, growth, development. Endocrinopathies. Three hours of field work.

0769. Animal Behavior. Cr. 4.

Prereq: 24 credits in biology. Function, biological significance, causation, and evolution of species-typical behavior. Three hours of field work.

0770. Animal Behavior Laboratory. (0,12). Cr. 3.

No credit after Biology 0579. Prereq: BIO 0569 or 0769. Environmental analysis in the laboratory, using live animals.

0772. Ornithology. (2,9). Cr. 4.

Prereq: BIO 0570. Morphology, systematics, ecology, evolution, physiology and behavior of birds. Three hours of individual field work.

0773. Mammalogy. (3,6). Cr. 4.

Prereq: BIO 0570. Systematics, geographical distribution, ecology, adaptive radiation, patterns of growth and reproduction, physiology. Field trips; three hours of individual field work.

0775. Insect Biology II: Distribution and Behavior. (2,6). Cr. 4.

Prereq: BIO 0574. Continuation of Biology 0574. Behavior, life history, ecological and paleontological distribution, and phylogeny of insects. Three hours of field work.

0777. Biology of Parasitism II. (3,9). Cr. 6.

Prereq: BIO 0578. Continuation of Biology 0578 with emphasis on the more advanced aspects of parasitism.

0778. Methods in Parasitology. (1,6). Cr. 3.

Prereq: consent of instructor; prereq. or coreq: BIO 0578. Technical methods in diagnostic work and research.

0779. Helminthology. (1,2). Cr. 3.

Prereq: BIO 0578 and 0678. Intensive survey of helminth parasites. Forms in vertebrates other than man.

0796. Research Problems in Biology. Cr. 1-12 (Max. 12 for M.S. students, who may not elect more than 6 credits per quarter; max. 48 for Ph.D. students, who may take up to 12 credits per quarter).

Prereq: consent of adviser or instructor. Original investigation.

0800. Special Topics in Biology. Cr. 1-4 (Max. 8 for M.S.; max. 16 for Ph.D.).

Prereq: consent of instructor. Various frontier aspects of biology such as advances in endocrinology. Work may take the form of lectures, laboratories or discussions. Topics to be announced in Schedule of Classes.

0878. Recent Advances in Parasitism. Cr. 3 (Max. 9).

Prereq: BIO 0566, 0577, 0578. Specialized aspects of newer phases of parasitology. Protozoa, helminths, arthropods.

0895. Graduate Seminar in Biology. Cr. 1 (Max. 6).

Prereq: graduate standing in biology. Graduate students are required to take two quarters; doctoral students may elect on a continuing basis. Presentations by graduate staff, advanced students, and visiting lecturers.

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

Prereq: consent of instructor.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

CHEMISTRY

Office: 277 Chemistry Building

Chairman: Norman A. LeBel

Professors

M. Zouhair Atassi, Ph.D., David F. Boltz, Ph.D., †J. Russell Bright, Ph.D., George H. Coleman, Ph.D. (Emeritus), Darrell D. Ebbing, Ph.D., John F. Endicott, Ph.D., Karl H. Gayer, Ph.D., Richard B. Hahn, Ph.D., Wilfried Heller, Ph.D., Joseph J. Jasper, Ph.D. (Emeritus), Carl R. Johnson, Ph.D., Larry Kevan, Ph.D., Tokuji Kimura, Ph.D., Stanley Kirschner, Ph.D., Norman A. LeBel, Ph.D., Edward C. Lim, Ph.D., John P. Oliver, Ph.D., Wendell H. Powers, Ph.D., A. Edward Remick, Ph.D. (Emeritus), George H. Schenk, Ph.D., Calvin L. Stevens, Ph.D., Tche T. Tchen, Ph.D., Dan Trivich, Ph.D.

Associate Professors

Robert D. Bach, Ph.D., Milton D. Glick, Ph.D., Richard L. Lintvedt, Ph.D., W. Martin McClain, Ph.D., Morton Raban, Ph.D., Gene P. Reck, Ph.D., David B. Rorabacher, Ph.D., †G. Ray Sherwood, Ph.D. (Emeritus)

Assistant Professors

Robert K. Boeckman, Jr., Ph.D., Richard E. DeSimone, Ph.D., Lester S. Gorelic, Ph.D., Arleigh V. Hartkopf, Ph.D., William L. Hase, Ph.D., A. Paul Schaap, Ph.D., Ronald R. Schroeder, Ph.D.

Instructor

Gretchen O. Luross, M.A. (Emeritus)

Adjunct Professor

Oliver H. Gaebler, Ph.D., M.D. (Lecturer)

DEGREE PROGRAMS

Bachelor of Arts — with a major in chemistry

Bachelor of Science in Chemistry

Master of Arts — with a major in chemistry

Master of Science — with a major in chemistry

Doctor of Philosophy — with a major in chemistry and specializations in analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, and physical chemistry

The courses offered by the department are designed to serve the needs of three distinct groups of students: (a) those majoring in chemistry with the intention of entering the chemical profession, (b) those majoring in chemistry with the intention of entering other professional fields, and (c) those majoring in

other subjects who desire to elect chemistry courses as part of their programs.

The sequence Chemistry 0107, 0108 and 0110 or its equivalent is prerequisite to all other courses in chemistry. All students intending to major in chemistry or other sciences, pre-medical and pre-dental students, pharmacy and engineering students, should elect Chemistry 0107 as their first chemistry course. In order to qualify for Chemistry 0107, the student must have completed one year of high school chemistry with laboratory and must pass qualifying examinations in high school chemistry. The qualifying examinations are given prior to and during each registration period.

Chemistry 0102, 0103, 0104 constitutes a one-year terminal sequence for non-science majors. A year of high school algebra preceding Chemistry 0102 is strongly recommended.

Students having little or no background in high school science and who thus do not qualify for Chemistry 0107 may ultimately plan to elect advanced courses in Chemistry. These students should enroll in Chemistry 0102. Having successfully completed Chemistry 0102 or its equivalent with a grade of C or better, they may then elect the following course sequence: Chemistry 0102, 0107, 0108.

BACHELOR OF ARTS

Major Requirements — Those who wish to follow the general curriculum in the College of Liberal Arts for the B.A. degree may fulfill the major requirements by completing a minimum of thirty-nine credits in chemistry exclusive of Chemistry 0107 and 0108. The courses must be distributed as follows:

	<i>credits</i>		<i>credits</i>
General Analytical 0110 . . .	4	Physical Sequence 0540, 0541,	
Quantitative Analytical 0410	3	0542, or 0544, 0540, 0541	8
Quantitative Analytical		Inorganic 0500	3
Lab. 0411	2	Instrumental Analysis	
Organic 0224, 0226,		Lab. 0615	2
0227, 0228	14	Advanced Analytical 0616 . .	3

At least twelve credits each in college mathematics and physics are also required: Mathematics 0211, 0212, 0213 or equivalent; Physics 0217, 0218, 0220 are strongly recommended, however Physics 0213, 0214, 0215 are acceptable.

Additional courses in chemistry may be elected from the following: Chemistry 0228, 0229, 0543, 0560, 0601, 0602, 0605, 0612, 0614, 0623, 0624, 0628, 0644, 0660, 0661, 0662.

BACHELOR OF SCIENCE IN CHEMISTRY

Special Curriculum — This curriculum fulfills the requirements of the American Chemical Society Committee on Professional Training and is designed primarily for those planning to enter the chemical profession. Students may take a maximum of eighty-two credits in chemistry.

Curriculum and Major Requirements

1. The College Group Requirements in English, natural science (chemistry majors need only one course in the biolog-

† Deceased

ical sciences), humanities, and social science must be met. The College Foreign Language Group Requirement as described in this bulletin must be met with the last course being German 0205 or its equivalent as certified by the undergraduate adviser.

2. Physics 0217, 0218, 0220.

3. Mathematics 0211, 0212, 0213, 0214, 0215, 0519. Additional courses in mathematics are strongly recommended.

4. Chemistry 0107 and 0108; 0110, 0224, 0226, 0227, 0228, 0229, 0410, 0411, 0500, 0540, 0541, 0542, 0543, 0544, 0601, 0602, 0615, 0616. In the junior year the student must enroll in Chemistry 0495. This course is a prerequisite for Chemistry 0496 (Chemical Research for Seniors). In the first two quarters of the senior year, the student must enroll for at least two credits each in Chemical Research for Seniors (Chemistry 0496), and must present an oral progress report to a Chemistry 0495 class. The student may elect to do work under the direction of any senior staff member of the Department of Chemistry. It is advised that the student consult with the faculty during the last quarter of the junior year in order to enable him to choose the field and staff member under whose direction this research will be carried out during the senior year. An additional six credits in advanced electives are required for the professional degree and must be chosen from the following: Chemistry 0605, 0612, 0614, 0623, 0624, 0628, 0644, 0660, 0661, 0662, 0664.

The student in the Bachelor of Science curriculum will take Chemistry 0107, 0108, and 0110 in his first year. Chemistry 0110 is prerequisite to all higher-numbered chemistry courses. The organic chemistry sequence of Chemistry 0224, 0226, 0227, 0228, and 0229 is normally completed in the second year, as well as mathematics through 0212. Chemistry 0540 should be taken as soon as Mathematics 0212 is completed (preferably the first quarter of the third year).

General Requirements for Graduate Study

Every entering student regularly enrolled toward a graduate degree in chemistry will be required to take four entrance (proficiency) examinations. These will serve both as a guide to the student and his future adviser and as a means of demonstrating proficiency in the following fields of chemistry: analytical, inorganic, organic, and physical chemistry. These examinations will be given prior to the fall and spring quarters and each will be from two to three hours in length. They will be based on undergraduate chemistry only. A student entering in the winter or spring quarters must take these examinations in the spring or fall, respectively. Within five consecutive academic quarters after admission to the M.A., M.S., or Ph.D. programs, the student must demonstrate proficiency in the fields previously designated. If the student has not demonstrated proficiency in the four fields of chemistry by the end of the prescribed period, he must terminate his studies as a graduate student in chemistry.

If a student passes one or more of the proficiency examinations, he will be regarded as having achieved proficiency in those fields of chemistry. If a student fails one or more of these examinations, he may gain proficiency in these fields by earning a grade of at least B in the course listed for each of the following areas: analytical chemistry (Chemistry 0610), inorganic chemistry (Chemistry 0600), organic chemistry

(Chemistry 0620), and physical chemistry (Chemistry 0640) or by repeating and passing the proficiency examination in these fields. Students specializing in biochemistry may substitute Chemistry 0660 or Chemistry 0662 for either the analytical or inorganic chemistry proficiency requirements.

Proficiency courses cannot be used for a distributed minor and this proficiency requirement cannot be waived.

MASTER'S DEGREES

Master of Science

Plan A or Plan B—Plan B only if authorized by the Departmental Committee on Graduate Study.

Master of Arts

Plan C—If authorized by the Departmental Committee on Graduate Study.

Admission may be granted to applicants who have completed one year of college physics, mathematics through calculus, and the equivalent of undergraduate quarter credits in chemistry as follows: general chemistry (four), advanced chemistry (three), organic chemistry (eight), physical chemistry (eight), qualitative analysis (four), and quantitative analysis (four). Applicants specializing in biochemistry may substitute zoology for advanced chemistry.

Candidacy must be established by the time eighteen credits have been earned. The applicant must file a copy of the *Plan of Work* with the chairman of the Departmental Committee on Graduate Study.

Degree Requirements

Plan A—Thirty-three credits in course work. Chemistry 0676 is recommended as an elective. A minimum of twelve credits of laboratory research (Chemistry 0899) under the direction of a staff member in the department is required. The Departmental Committee on Graduate Study strongly recommends that those unable to follow Plan A petition for the M.A. degree under Plan C.

Plan B—Designed primarily for teachers. Forty-two credits in course work plus an essay is required. No laboratory research is required.

Plan C—Designed primarily for teachers. Forty-eight credits in course work are required. No research courses are required. The student must elect at least six courses open to graduate students in at least four of the following chemistry fields: analytical, biochemistry, inorganic, organic, and physical, for a total of at least twenty-four credits excluding research, seminar, and proficiency courses. At least one of the courses must involve laboratory work. The student must register for at least two seminar courses and for at least one credit in Chemistry 0885. At least eight credits of course work in chemistry must be in courses open only to graduate students.

A final oral examination covering course work and the thesis (if any) is required of all candidates.

DOCTOR OF PHILOSOPHY

All applications for admission to the doctoral program in chemistry and all adjustments in the program subsequent to admission must have the approval of the Departmental Committee on Graduate Study.

A minimum undergraduate honor point average of 3.0 in chemistry and cognate sciences is required except by special permission of the Departmental Committee on Graduate Study. An applicant having a lower average must earn the master's degree with a superior academic record before acceptance as a doctoral applicant. An applicant having a master's degree from another institution must show an honor point average of at least 3.0 (B).

In order to become a candidate for the Ph.D. degree, an applicant must successfully complete a qualifying examination. The qualifying examination is both written and oral; the written examination is given in the major division; the oral examination includes the major field and covers minor and cognate fields as well. Any additional requirements set by the Graduate Division or the department must be completed.

DEGREE REQUIREMENTS

In addition to work in his major specialization, the student must elect a minor. This may be either a distributed minor in chemistry (completion of twelve credits in three divisions of chemistry other than his specialization), or a minor outside of the department (completion of twelve credits in an approved cognate field). The student must satisfy the foreign language proficiency requirements set by the Graduate Division. The language requirement can be met by: (a) successful performances on standardized national examinations in one language, German, French or Russian; or (b) by completion of college level German, French or Russian with a grade of C or better through the sophomore level (fourth semester or sixth quarter). The Chairman of the Departmental Committee on Graduate Study should be consulted for details of the language requirement. Satisfactory completion of a "Pre-Oral" examination based on the student's doctoral research is required prior to the final writing of his dissertation and at least six weeks before the final public lecture.

Minor Study in Chemistry

Majors in other disciplines who elect chemistry as a minor should have completed general chemistry, analytical chemistry, and organic chemistry.

ASSISTANTSHIPS, FELLOWSHIPS

Graduate assistantships and fellowships are available for well-qualified students working toward the M.S. or Ph.D. degree. Requests for information should be addressed to the Fellowship Coordinator, Department of Chemistry.

Biochemistry (Special Information)

The following Basic Medical Science courses are given by the School of Medicine.

Biochemistry 0701. General Biochemistry Lecture.

Biochemistry 0702. General Biochemistry Laboratory.

Biochemistry 0703. General Biochemistry Lecture.

Biochemistry 0704. General Biochemistry Laboratory.

A minimum grade of C is required in every prerequisite course.

Chemical and Metallurgical Engineering

The following courses are given by the College of Engineering.

Metallurgical Engineering 0260. Physical Metallurgy I.

Chemical Engineering 0535. Polymer Engineering I.

Chemical Engineering 0537. Polymer Engineering Laboratory I.

Chemical Engineering 0635. Polymer Engineering II.

COURSES OF INSTRUCTION¹ (CHM)

A minimum grade of C is required in every prerequisite course. The parenthetical notation at the end of the course description indicates the most probable quarters in which the course will be offered. (Su=Summer, W=Winter, Sp=Spring, F=Fall)

0100. (PHS 0192) Physical Science: Chemistry. Cr. 4.

For non-science majors. Chemical facts and theories; their consequences in history, politics, economics, education. (FWSpSu)

0101. Introduction to Chemistry. Cr. 5.

Matter and energy in chemistry, chemical symbols and equations, introduction to chemical bonding, acids and bases, solubilities and solutions; survey of organic chemistry; synthesis and reactions of biologically important organic compounds.

0102. General Chemistry I. (4,3). Cr. 4.

Prereq: intermediate high school algebra recommended. Breakage fee \$10. For all students with little or no high school chemistry. Matter and energy in chemistry, chemical symbols and equations, structure and properties of atoms, introduction to chemical bonding, periodicity in chemistry. (FWSp)

0103. General Chemistry II. (4,3). Cr. 4.

Prereq: CHM 0102. Breakage fee \$10. Terminal course in inorganic chemistry. Preparation and properties of the chemical elements and their simple compounds, acids and bases, solubilities and solutions, introduction to chemical metallurgy. (WSp)

0104. General Chemistry III. (4,3). Cr. 4.

Prereq: CHM 0103. Breakage fee \$10. Terminal course in organic and biological chemistry. Synthesis and reactions of some of the most important organic compounds, survey of bio-chemistry with applications to nutrition, physiology and clinical chemistry. (SpSu)

The beginning chemistry sequence 0107, 0108 and 0110 is prerequisite for all other courses in chemistry.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0107. Principles of Chemistry I. Cr. 4.

No credit after CHM 0103. Prereq: completion of one year of high school chemistry including laboratory; satisfactory score on qualifying examination in high school chemistry or CHM 0102. Fundamental laws and principles of chemistry and their applications; nuclear, electronic, atomic, and molecular structure; the solid, liquid, and gaseous states; solutions; the chemical bond; the non-metallic elements. (FWSpSu)

0108. Principles of Chemistry II. (4,4). Cr. 4.

Prereq: CHM 0107 or equiv. Breakage fee \$10. Continuation of Chemistry 0107. Acids and bases; principles of chemical thermodynamics and of kinetics and equilibria; the metallic elements. (FWSpSu)

0110. General Analytical Chemistry. (3,6). Cr. 4.

Prereq: CHM 0108 or equiv. Breakage fee \$10. General theory of solutions including thermodynamics and kinetics. Properties and reactions of inorganic substances. Introduction to quantitative chemistry. (FWSpSu)

0224. Organic Chemistry I. Cr. 4.

Prereq: CHM 0110 or equiv. Coreq: CHM 0110 with consent of instructor. The sequence Chemistry 0224, 0226, 0227, and 0228 meets requirements for premedical and pre dental students. Structure, stereochemistry and physical properties of all important classes of organic compounds. Reaction intermediates. Thermodynamics and kinetics of organic reactions. Introduction to organic spectroscopy. (FSp)

0226. Organic Chemistry II. Cr. 4.

Prereq: CHM 0224 or equiv. Continuation of Chemistry 0224. General reactions of aliphatic and aromatic compounds; emphasis on reaction mechanisms and one-step conversions. (WSu)

0227. Organic Chemistry Laboratory. (1,9). Cr. 3.

Prereq. or coreq: CHM 0226. Breakage fee \$10. Experiments to familiarize student with important laboratory techniques, with methods of identifying organic compounds, with reactions of typical members of important classes of aliphatic and aromatic compounds, with scope and limitations of organic syntheses. (WSpSu)

0228. Organic Chemistry III. Cr. 3.

Prereq: CHM 0226; prereq. or coreq: CHM 0227 or equiv. Required for chemistry majors and premedical students. Recommended for pharmacy and pre dental students. Continuation of Chemistry 0226. Heterocyclic compounds, polynuclear aromatic and aliphatic compounds, amino acids, proteins, carbohydrates; introduction to organic spectroscopy. (FSp)

0229. Organic Chemistry Laboratory. (1,7). Cr. 2.

Prereq: CHM 0227; prereq. or coreq: CHM 0228 or equiv. Required of students specializing in chemistry or pharmacy. Breakage fee \$10. Continuation of Chemistry 0227. Advanced synthetic procedures; techniques of vacuum distillation, anhydrous conditions. Experiments involving use of chromatographic techniques and analysis by spectro-photometric methods. (F)

0410. Quantitative Analytical Chemistry. Cr. 3.

Prereq: CHM 0110 or equiv., or CHE 0280; coreq: CHM 0411. Required of chemistry majors. Potentiometric analysis, and other instrumental methods of analysis. Intensive treatment of statistics, selected equilibria, methods of following precipitation, neutralization, chelation, oxidation-reduction, and color-forming reactions, chemical separations. (FSp)

0411. Quantitative Analytical Chemistry Laboratory. (0,8). Cr. 2.

Prereq: CHM 0110 or equiv; coreq: CHM 0410. Required of chemistry majors. Breakage fee \$10. Laboratory methods of chemical analysis, potentiometric analysis, and other selected methods of instrumental analysis. (FSp)

0470. Frontiers in Chemistry. Cr. 1 (Max. 2).

Prereq: CHM 0495. Offered for S and U grades only. Fields of fundamental chemistry now under investigation and not yet in the literature. Different field at each presentation of course. Presented by invited specialists actively engaged in development of phase under consideration. (FSp)

0495. Chemistry Research Colloquium. Cr. 1.

Credit only on completion of Chemistry 0496. Prereq: CHM 0540, junior standing, and consent of instructor. Required of all students working toward a B.S. degree in chemistry. Research lectures (faculty, visiting scientists, and Chemistry 0496 participants). (FSp)

0496. Chemical Research for Seniors. Cr. 2-4 (Max. 12; min. 4, for chemistry majors).

Prereq: CHM 0495, 0544, and consent of instructor. Original investigation under the direction of a senior staff member. In addition to the research requirements the student must present an oral progress report to the Chemistry 0495 class. (FWSpSu)

0500. Intermediate Inorganic Chemistry. Cr. 3.

Prereq: CHM 0224 or equiv., consent of instructor. Chemistry of the main group elements. (WSu)

0540. Introduction to Thermodynamics. Cr. 3.

Prereq: CHM 0110; MAT 0212, or equiv. The laws of thermodynamics, thermochemistry, physical chemistry of solutions. (FSp)

0541. Physical Chemistry Laboratory I. (0,6). Cr. 2.

Prereq: CHM 0410 and 0411 and 0540, or equiv. Breakage fee \$10. Experiments utilizing thermodynamics, thermochemistry, and phase equilibria. (WSu)

0542. Chemical Dynamics. Cr. 3.

Prereq: CHM 0540 or equiv. The kinetic theory of gases, statistical thermodynamics, kinetics of chemical reactions. (WSu)

0543. Physical Chemistry Laboratory II. (0,6). Cr. 2.

Prereq: CHM 0541, 0542 and PHY 0214 or 0218. Breakage fee \$10. Experiments utilizing gas kinetics, reaction kinetics, electrochemistry; and other advanced topics in physical chemistry. (FSp)

0544. Quantum Chemistry and Spectroscopy. Cr. 3.

Prereq: CHM 0110, PHY 0213 or 0217, MAT 0214. Introduction to quantum theory as applied to chemistry; theory of chemical spectroscopy. (FSp)

0560. Survey of Biochemistry. Cr. 4.

Prereq: CHM 0104 and consent of instructor; or CHM 0224. (F)

Analytical Chemistry

0610. Survey of Analytical Chemistry. Cr. 3.

Prereq: CHM 0410 and 0411 or equiv. and consent of instructor. Primarily for graduate students not specializing in analytical chemistry. Comprehensive review of principles and methods. Chemical equilibria and stoichiometry. (Satisfies graduate proficiency requirement and analytical course requirement for M.S. degree. Does not satisfy analytical course requirement for distributed minor for Ph.D. degree.)

0612. Quantitative Organic Spectroscopy. (3,4 or 8). Cr. 4 or 5.
Prereq: CHM 0410 and 0411 or equiv. Theory and application of absorption and emission spectroscopy to quantitative organic analysis. Unified consideration of UV absorption spectrophotometry, fluorescence emission spectrometry, and phosphorescence emission spectrometry. Electronic theory of charge transfer spectra. Use of IR and NMR for quantitative analysis. Functional group analysis wet methods and integration with spectroscopic methods.

0614. Advanced Analytical Chemistry: Inorganic. (3,4 or 8). Cr. 4 or 5.

Prereq: CHM 0410 and 0411. Physical chemical concepts applied to inorganic analysis. Multiple equilibria as applied to masking, separations, and selectivity in acid-base, complexometric, and redox reactions. Analytical chemistry of the elements by groups with discussion of representative elements. Laboratory work on analysis of alloys, minerals, and commercial products.

0615. Instrumental Analysis Laboratory. (1,7). Cr. 2.

Prereq: CHM 0411; prereq. or coreq: CHM 0616. Required of all B.A. and B.S. majors. Recommendation: elect after Chemistry 0616. Experiments with spectrophotometry, fluorometry, atomic absorption spectroscopy, coulometry, gas chromatography, polarography, and other electric methods of analysis.

0616. Advanced Analytical Chemistry: Instrumental Analysis. Cr. 3.

Prereq: CHM 0410. Required of all B.A. and B.S. majors. Recommended immediately after Chemistry 0410. Theory and practice of spectroscopic, electrical, and thermal methods and analysis; treatment of gas chromatography as a means of measurement and separation.

0617. Theory of Analytical Chemistry for Teachers. Cr. 3.

Prereq: consent of instructor. Open only to in-service teachers of high school and college chemistry. Physio-chemical principles pertaining to analytical research and applied analysis. Analytical separations and quantitation.

0619. Quantitative and Instrumental Analysis. (3,3). Cr. 4.

No credit for chemistry majors, nor if taken after CHM 0410-0411. Prereq: CHM 0110 or equiv. Primarily for students in biology, premedicine, related health science and teachers of high school and college chemistry. Theory and practice of modern analytical chemistry with applications in the bio-medical fields.

0810. Theory of Analytical Chemistry. Cr. 3.

Prereq: CHM 0610 or equiv. Application of physicochemical principles to titrimetric and gravimetric methods of analysis. Acid-base equilibria in nonaqueous solutions, statistical treatment of analytical data, theory of sampling, complex equilibria and analytical use of complexation reactions, thermodynamic considerations in redox equilibria, graphic representation of equilibrium data, multi-stage separation methods.

0812. Electroanalytical Chemistry. (3,0 or 4). Cr. 3-4.

Prereq: CHM 0610 or equiv. The theory and practice of modern voltametric methods as applied in analytical and kinetic studies.

0814. Radiochemistry. (3,4). Cr. 4.

Prereq: CHM 0544 or equiv. Properties and safe handling of radioactive substances. Experiments dealing with identification and use of various radioactive isotopes and application of tracer techniques.

0816. Analytical Absorption Spectrometry. (1,4). Cr. 2.

Prereq: CHM 0610 or equiv. Principles of spectrophotometry and application of absorption spectra of ultraviolet, visible, and infra-

red regions to problems in analytical chemistry. Theory and practice of atomic absorption spectrometry. Color specification, attenuated total reflectance, differential spectrophotometry.

0817. Special Topics in Analytical Chemistry. Cr. 2-4 (Max. 9, M.S.; max. 18, Ph.D.).

Prereq: CHM 0610 or equiv. Topics in different quarters include: analytical instrumentation, analytical emission spectrometry, analytical separations, complexometric titrations, kinetics and mechanisms of reactions.

0880. Seminar in Analytical Chemistry. Cr. 1 (Max. 6, M.S.; max. 9, Ph.D.).

Prereq: consent of adviser. Required of all majors in analytical chemistry. Weekly meeting of departmental staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows.

Organic Chemistry

0620. Intermediate Organic Chemistry. Cr. 3.

Prereq: CHM 0228 and 0540 or equiv. and consent of instructor. Satisfies graduate proficiency requirement; does not satisfy B.S. chemistry elective requirement, nor Ph.D. distributed minor organic course requirement. Comprehensive review of principles, molecular structure, reaction mechanisms and synthetic utility.

0621. Organic Preparations. Cr. 2-4.

Prereq: CHM 0229 or equiv. Preparation of a number of organic compounds. Procedures selected from original literature to acquaint student with techniques of preparative organic chemistry and to develop skill in manipulation. In addition to more common operations, students are expected to become proficient in high efficiency fractionation, vacuum distillation, molecular distillations, reactions in inert atmospheres. Insofar as practical, preparations assigned to correspond with student's interests.

0623. Organic Spectral Identification. Cr. 3.

Prereq: CHM 0228 or equiv. Application of IR, UV, NMR, and mass spectral methods to the identification of organic compounds. Recommended for students intending to do graduate work or industrial work in organic chemistry.

0624. Organic Qualitative Analysis Laboratory. (0,8). Cr. 2.

Prereq: CHM 0623. Separation and identification of organic compounds. Spectroscopic methods will be coupled with systematic chemical approaches. The laboratory component of Chemistry 0623, this course is recommended for students intending to do graduate work or industrial work in organic chemistry.

0626. Bio-Organic Chemistry for Teachers. Cr. 3.

Prereq: consent of instructor. Open only to in-service teachers of high school and college chemistry. Organic reactions and reaction mechanisms, modern techniques of structure determination, stereochemistry; intermediary metabolism, mechanism of action enzymes, protein synthesis, synthesis of RNA and DNA.

0628. Advanced Organic Chemistry. Cr. 3.

No credit for graduate chemistry majors. Prereq: CHM 0228 and 0540 or equiv. and consent of instructor. Mechanisms of specific classes of reactions; reaction intermediates; development of criteria for establishing reaction mechanisms; structure-reactivity correlations.

0720. Advanced Organic Chemistry I. Cr. 3.

Prereq: CHM 0228 and 0540 or equiv., or acceptable performance on organic proficiency exam and consent of instructor. Mechan-

isms of specific classes of reactions; reaction intermediates; development of criteria for establishing reaction mechanisms; structure-reactivity correlations.

0721. Organic Spectral Identification. Cr. 3.

Prereq: CHM 0228 or equiv. Application of IR, UV, NMR and mass spectral methods to the identification of organic compounds.

0821. Advanced Organic Chemistry II. Cr. 3.

Prereq: CHM 0720 or equiv. and consent of instructor. Structure and stereochemistry of organic molecules and correlations between structure and chemical and physical properties.

0822. Organic Reactions. Cr. 3.

Prereq: CHM 0821 or equiv. Alkylation reactions, active methylene compounds, aldol and related condensations such as Perkin, Mannich, Michael, chloromethylation; Grignard reactions, synthesis of acid derivatives. Working knowledge of scope and limitations of important synthetic methods of organic chemistry.

0826. Advanced Physical-Organic Chemistry. Cr. 3.

Prereq: CHM 0821 or equiv. Atomic and molecular properties and experimental techniques for study of reaction mechanisms and molecular structure. Kinetics of organic reactions.

0828. Chemistry of Steroids and Terpenes. Cr. 3.

Prereq: CHM 0821 or equiv. Structure proof, stereochemistry, reactions and synthesis of representative classes of steroids and terpenes. Conformational analysis and mechanistic interpretations of reactions as well as structural correlations through biogenetic relationships. Recent developments.

0830. Special Topics in Organic Chemistry. Cr. 3 (Max. 9, M.S.; max. 18, Ph.D.).

Prereq: consent of instructor. Recent developments in organic chemistry; modern interpretations. Topics in different quarters include alkaloids, carbohydrates, proteins, free radical chemistry.

0881. Seminar in Organic Chemistry. Cr. 1 (Max. 6, M.S.; max. 9, Ph.D.).

Prereq: consent of adviser. Required of all graduate students in organic chemistry. Weekly meetings of members of the departmental staff, invited guests and qualified students to study recent developments. Each seminar member presents papers and enters into discussions that follow.

Inorganic Chemistry

0600. Intermediate Inorganic Chemistry I. Cr. 3.

Prereq: CHM 0540 or equiv. Open only to graduate students in chemistry. Fundamental principles of theoretical inorganic chemistry emphasizing chemical bonding, and periodic classification of elements. (Satisfies graduate proficiency course requirements; does not satisfy distribution requirements for Ph.D. degree.)

0601. Inorganic Chemistry Laboratory. (1,5). Cr. 2.

Prereq. or coreq: CHM 0602 or equiv. Breakage fee \$10. Preparation of inorganic compounds; important synthetic procedures; elements of fabrication of chemical glassware; vacuum techniques; temperature measurement and control; fractional crystallization, distillation, sublimation; pressure measurement; manipulations requiring exclusion of the atmosphere; reactions in non-aqueous solvents.

0602. Intermediate Inorganic Chemistry II. Cr. 3.

Prereq: CHM 0224 and 0500 or equiv. Chemistry of the transition metal elements; elementary coordination chemistry.

0605. Structure and Bonding in Inorganic Systems. Cr. 3.

Prereq: CHM 0602 or equiv. or consent of instructor. Modern theories, molecular symmetry and application of group theory.

0609. Inorganic Chemistry for Teachers. Cr. 3.

Credit towards graduate degree only on consent of chairman. Prereq: consent of instructor. Open only to in-service teachers of high school or college chemistry. Modern concepts and their applications.

0801. Survey of Modern Inorganic Chemistry. Cr. 3.

Prereq: CHM 0602 or consent of instructor. Theories and interpretations of periodicity, chemical bonding, inorganic stereochemistry, acid-base reactions and coordination chemistry.

0802. Structure and Spectroscopy in Inorganic Systems. Cr. 3 (Max. 9).

Prereq: CHM 0801 or consent of instructor. Modern concepts of molecular and electronic structure as elucidated by spectral and magnetic measurements. Ligand field theory, inorganic stereochemistry, magnetochemistry, specialized spectral methods.

0803. Inorganic Kinetics and Reaction Mechanisms. Cr. 3 (Max. 9).

Prereq: CHM 0801 or consent of instructor. Variable topics; reaction mechanisms of coordination complexes, catalytic reactions, inorganic photochemistry.

0804. Advanced Inorganic Syntheses and Reactions. Cr. 3 (Max. for M.S. 9, for Ph.D. 18).

Prereq: CHM 0801 or consent of instructor. Variable topics; organometallic chemistry, transition metal compounds, non-aqueous solvent systems, bioinorganic chemistry, hydrides.

0882. Seminar in Inorganic Chemistry. Cr. 1 (Max. 6, M.S.; max. 9, Ph.D.).

Prereq: consent of adviser. Required of all graduate students in inorganic chemistry. Weekly meetings of departmental staff and qualified students to study recent developments. Each seminar member presents assigned papers and enters into discussions that follow.

Physical Chemistry

0640. Intermediate Physical Chemistry. Cr. 3.

Prereq: consent of instructor. Individual instruction in basic principles of physical chemistry. (Satisfies graduate proficiency course requirement. Does not satisfy distribution requirement for Ph.D. degree.)

0644. Mathematical Techniques in Physical Chemistry. Cr. 3.

Prereq: CHM 0544 or equiv. Methods of vector calculus, matrix algebra. Fourier Series, and orthogonal functions; application to various fields of chemistry.

0656. Physical Chemistry for High School Teachers. Cr. 3.

Prereq: consent of instructor (calculus not required). Restricted to teachers of high school chemistry. Atomic and molecular structure; thermodynamics and chemical equilibrium; reaction kinetics.

0740. Introduction to Molecular Spectra. Cr. 3.

Prereq: CHM 0544. Fundamentals of vibrational, rotational, and electronic spectra; applications to the study of atoms and molecules.

0741. Thermodynamics. Cr. 3.

Prereq: CHM 0544 or equiv. A first course in thermodynamics covering the three laws and their application to chemistry; includes an introduction to statistical thermodynamics.

0743. Chemical Kinetics. Cr. 3.

Prereq: CHM 0544 or equiv. Basic theory of reaction velocity; its application to reaction mechanisms.

0753. Statistical Thermodynamics. Cr. 3.

Prereq: CHM 0741. Application of statistical methods to determination of thermodynamic properties of chemical systems from a knowledge of molecular properties.

0757. Quantum Chemistry I. Cr. 3.

Prereq: CHM 0740. Fundamentals of wave mechanics. Approximate methods of solution of Schroedinger's equation. Molecular orbital and valence bond theory of molecular structure.

0758. Quantum Chemistry II. Cr. 3.

Prereq: CHM 0757. Molecular aspects of symmetry and its application to chemical problems.

0842. Colloid Chemistry I. Cr. 2.

Prereq: CHM 0544 or equiv. Properties of colloidal systems due to their size, shape and surface, electrokinetics and rheology.

0843. Colloid Chemistry II. Cr. 2.

Prereq: CHM 0842. Theory of stability and coagulation of colloidal systems; optical properties, interaction between colloidal systems; modern methods in colloid research.

0845. Chemistry of the Solid State. Cr. 3.

Prereq: CHM 0544 or equiv. Chemical properties of solids; structure of crystals, imperfections, crystal growth, reactions in and on solids, properties of metals, semiconductors.

0850. Physical Chemistry of Polymers. Cr. 3.

Prereq: CHM 0544. Thermodynamics of large molecules; their optical properties, light scattering and anisotropy; correlation between their physical properties and molecular weight and molecular shape; physical chemistry and physics of bulk polymer.

0857. Topics in Theoretical Chemistry. Cr. 3.

Prereq: consent of instructor. Topics such as molecular quantum mechanics, molecular dynamics, and scattering offered in different quarters.

0858. Topics in Structural Chemistry. Cr. 3.

Prereq: consent of instructor. Various aspects of structural chemistry — such as crystallographic and spectroscopic determinations of structure, molecular and crystal symmetry.

0859. Special Topics in Physical Chemistry. Cr. 3 (Max. 9, M.S.; max. 18, Ph.D.).

Prereq: consent of instructor. Topics under recent investigation and of current interest offered in different quarters.

0865. Biophysical Chemistry. Cr. 3.

Prereq: CHM 0544 and 0660, or equiv. Physical chemistry of biologically important substances; emphasis on proteins including modern technique.

0883. Seminar in Physical Chemistry. Cr. 1 (Max. 6 for M.S.; max. 9 for Ph.D.).

Prereq: consent of adviser. Required of physical chemistry graduate students. Weekly meetings of departmental staff and qualified

students to study recent developments. Each seminar member presents assigned papers and enters into discussions that follow.

Biochemistry

0660. Biochemistry I. Cr. 3.

Prereq: CHM 0226, 0410, BIO 0103, CHM 0660, 0662 and 0664 taught as integrated courses. Enzymatic breakdown of foodstuff, synthesis of body constituents, mechanism of action of vitamins and hormones, and other chemical processes in biological systems.

0661. Biochemistry Laboratory. (0,6). Cr. 2.

Prereq: CHM 0662; written consent of adviser and instructor. Correlated with lecture material in Chemistry 0660 and supplemented with discussions and demonstrations.

0662. Biochemistry II. Cr. 3.

Prereq: CHM 0660 or equiv. Continuation of Chemistry 0660.

0663. Biochemistry Laboratory. (0,6). Cr. 2.

Prereq: CHM 0661; prereq. or coreq: CHM 0662. Correlated with lecture material in Chemistry 0662 and supplemented with discussions and demonstrations.

0664. Biochemistry III. Cr. 3.

Prereq: CHM 0662 or equiv. Continuation of Chemistry 0662.

0666. Biochemistry for Teachers. Cr. 3.

Prereq: consent of instructor. Restricted to in-service teachers of high school and college chemistry. Intermediary metabolism; mechanism of action of enzymes; protein synthesis; synthesis of RNA and DNA.

0860. Hormone Chemistry I. Cr. 2.

Prereq: CHM 0620 or 0660. Pituitary and thyroid hormones; emphasis on their chemical nature, biochemical effects in humans.

0862. Hormone Chemistry II. Cr. 2.

Prereq: CHM 0620 or 0660. Estrogen, androgen, adrenal cortex hormones. Chemistry and biological effects in humans.

0864. Hormone Chemistry III. Cr. 2.

Prereq: CHM 0620 or 0660. Chemistry, physiological and pathological aspects of insulin, catecholamines and parathormone; emphasis on humans. Attention to renal hemodynamics.

0867. Special Topics in Biochemistry. (3,2). Cr. 3-5 (Max. 9 for M.A. or M.S.; max. 18 for Ph.D.).

Prereq: CHM 0662 or equiv. Recent developments. Topics to be announced in Schedule of Classes.

0884. Seminar in Biochemistry. Cr. 1 (Max. 6 for M.S.; max. 9 for Ph.D.).

Prereq: consent of adviser. Required of all graduate students in biochemistry. Weekly meetings of members of the departmental staff, invited guests and qualified students to study recent developments. Each seminar member presents papers and enters into discussions that follow.

History, Research, Applied Chemistry, and Special Courses

0676. Chemical Literature. Cr. 2.

Prereq: CHM 0544 and 0620, or equiv.; reading knowledge of German. Intended to give facility in location of information of chemical nature. Biographies, encyclopedias, abstract journals,

reviews, monographs, dictionaries; inorganic, organic, physical, analytical, and biochemical literature.

0690. Directed Study. Cr. 1-4 (Max. 12).

Undergrad. prereq: consent of adviser; grad. prereq: consent of adviser and graduate officer.

0790. Directed Study. Cr. 1-4 (Max. 16).

Prereq: consent of adviser and graduate officer.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser and chairman.

0870. Research in Chemistry. Cr. 1-16 (Max. 45).

Prereq: consent of adviser.

0885. Frontiers in Chemistry. Cr. 1 (Max. 8).

Prereq: consent of instructor. Offered for S and U grades only. Fields of fundamental chemistry now under investigation and not yet in the literature. Different field each time course is presented. Phases presented by invited specialists actively engaged in development of phase under consideration.

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

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

COMPARATIVE LITERATURE

Office: English Department, 431 State Hall

Director: Alfred Schwarz

Staff: selected from the Departments of English, Greek and Latin, Humanities, Near Eastern Languages, Romance and Germanic Languages, and Slavic Languages.

MASTER OF ARTS IN COMPARATIVE LITERATURE

Plan B — Forty-four credits in course work plus an essay.

Admission — All applicants must meet the general standards for admission to graduate study as determined by the University and stated elsewhere in this bulletin. In addition, the student should have a reasonable command of two languages and literatures, one of which may be English.

Candidacy must be established by the time sixteen credits have been earned.

Degree Requirements — The student is required to study bibliography and methods of research, to take a two-quarter seminar in literary theory and the comparative study of literature, to take course work in two literatures, and to take a course in problems of translation. Each student completes his program by writing an essay or through independent study and examination.

Courses of Instruction — Courses are drawn from the above named departments.

COMPUTER SCIENCE SECTION

of the Department of Mathematics

Office: 646 Mackenzie Hall

Coordinator, Computer Science Section: Seymour J. Wolfson

Chairman, Department of Mathematics: Martin T. Wechsler

Professor

Franklin H. Westervelt, Ph.D.

Associate Professors

Charles F. Briggs, Ph.D., Seymour J. Wolfson, Ph.D.

Assistant Professors

Daniel R. Frantz, Ph.D., Stephen P. Hepler, Ph.D., Anil K. Jain, Ph.D., Samir Kamal, Ph.D., Ronald J. Rudman, Ph.D., Ronald J. Srodawa, Ph.D., Wing Cheung Tam, Ph.D.

Adjunct Assistant Professor

Robert E. Monroe, B.S., Associate Director, Computer and Data Processing Center

DEGREE PROGRAMS

Bachelor of Arts — with a second major in computer science

Bachelor of Science — with a second major in computer science

Bachelor of Science in Computer Science

Master of Arts — with a major in computer science

Master of Science — with a major in computer science

Computer science is a new and rapidly growing field of knowledge which already has had a profound effect on human society. The Computer Science Section, which is organized as a separate division of the Department of Mathematics, teaches the principles and use of computing and information processing systems, conducts research and exploration into the potentials of such systems, and assists the university community in dealing with the ever-increasing impact of modern computing technology on almost every field of endeavor.

Degree programs have been established at both the undergraduate and graduate master's levels for those seeking concentrated study in the field of computer science. In addition, on the undergraduate and graduate level the Computer Science Section offers courses designed to supplement and support the educational programs of departments throughout the University.

Facilities

The University operates one of the largest computer centers in the metropolitan area. This modern facility is dedicated to the service of all university students, faculty, and staff. The

center currently has an IBM System/360 model 67 with two processors and two million bytes of semi-conductor high speed memory and several auxiliary data storage devices attached. The operating system used supports both time-sharing terminals as well as batch job submissions.

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

Students in the computer science courses are one of the major users of the computer facilities. Computer use for education and research is strongly encouraged and supported by the University.

Introductory Courses

The Computer Science Section offers a large number of courses at the undergraduate level. Students interested in a general knowledge of computer science or those wishing to enhance some other field of interest will find many of these courses appropriate as an introduction to the field.

Among these courses are some for those interested in only a cultural survey of the field or for those who wish only to acquaint themselves with a knowledge of one or more programming languages. Some of these courses are not intended for persons pursuing a degree program in computer science and one is urged to consult the course listings or consult with an adviser if there is some question in regard to degree credit.

SECOND MAJOR IN COMPUTER SCIENCE

Rewarding connections exist between computer science and most other fields of specialization within the College of Liberal Arts. The Computer Science Section offers students who have already declared an undergraduate major an opportunity to declare a second major in computer science. Students may declare their first major in any department.* Those interested in a combined program in mathematics and computer science are referred to option D for mathematics majors.

BACHELOR OF ARTS — SECOND MAJOR

The requirements for this degree are:

1. Mathematics 0500, 0501, 0502, 0503, 0506 (or 0211, 0213, 0215, 0221, 0506).
2. Computer Science 0201, 0220, 0221, 0286 or 0320, 0440, 0510.
3. Three additional courses must be taken from the following courses: Computer Science 0460, 0503, 0520, 0530, 0540, 0545, 0550, 0555, 0560, 0561, 0565, 0610; Electrical Engineering 0477 and 0571.

* Mathematics majors electing Option D are excluded from this second major.

In special cases, with an adviser's approval, computer science related courses from other departments may be used as alternates to those listed in requirement 3 above.

BACHELOR OF SCIENCE—SECOND MAJOR

The requirements for this degree are:

1. Mathematics 0211, 0213, 0215, 0221, 0506.
2. Computer Science 0201, 0220, 0221, 0286 or 0320, 0440, 0460, 0510.
3. Two additional courses must be taken from the following courses: Computer Science 0503, 0520, 0530, 0540, 0545, 0550, 0555, 0560, 0561, 0565, 0610, Electrical Engineering 0477 and 0571.

In special cases, with an adviser's approval, computer science related courses from other departments may be used as alternates to those listed in requirement 3.

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

This degree has been designed to provide a strong academic foundation in the areas of computer science and information processing. The courses required provide a good general background in these areas and allow for some concentration at a more advanced level. Prerequisite mathematics is required to a level commensurate with the mathematics necessary in many of the advanced computer science courses in this program. Persons interested in pursuing graduate studies in the field of computer and information science are advised to prepare themselves through this degree program.

The requirements for this degree are:

1. The Liberal Arts Group Requirements in English, natural science, humanities, and social science must all be met. The foreign language group requirement must also be satisfied (French, German, or Russian recommended).
2. Mathematics preparation equivalent to Mathematics 0211, 0212, 0213, 0214, 0215, 0506, 0519, and 0580. Mathematics 0513 is recommended, especially for those who plan to go on for graduate work.
3. Computer science basic sequence: Computer Science 0201, 0220, 0221, 0440, 0460, 0510, 0520, 0530, 0545.
4. Computer Science 0286 or 0320.
5. An additional two courses must be selected from any of the following: Computer Science 0286, 0320, Computer Science courses numbered 0500 or above,* Electrical Engineering 0571, Industrial Engineering 0557, and Basic Engineering 0414.

In special cases, with an adviser's approval, computer science related courses from other departments may be used as alternates to those listed in requirement 5.

* Excluded from this list are certain computer science service courses, as designated in this bulletin (see course listings).

COOPERATIVE PROGRAM

Students who wish to enrich their education with practical computer science may enroll in the Cooperative Program. In this program full-time study terms are alternated with full-time work assignments in cooperating industries. The program may be entered in either the junior or senior year. Some students are enrolled in the Series A (winter-summer work terms) and others in the Series B (fall-spring work terms). Most of the work assignments are in the metropolitan Detroit area on a commuting basis.

Each term a student is on a work assignment he must enroll in Computer Science 0495, Professional Practice in Computer Science. He may also enroll for no more than one course with the approval of the College Co-op Coordinator. A report covering each work assignment is required of the student, and his performance on the job is rated by his industrial supervisor. Salaries and other benefits are paid for the time spent on each work assignment. For details and enrollment procedures contact the College Co-op Coordinator at 387 Mackenzie Hall.

GRADUATE STUDY

The Department of Mathematics through the Computer Science Section offers an opportunity for advanced graduate course work in computer science. The courses can be chosen to supplement and enrich programs of graduate study in other departments of the University. In particular a student may earn a Master of Arts or a Doctor of Philosophy with a major in mathematics by satisfying the requirements for that degree, taking appropriate electives in computer science, and writing an essay or thesis under the direction of a faculty member in the Computer Science Section.

For those whose primary interest is in the area of computer science itself, the graduate program centers on the degrees of Master of Arts and Master of Science with a major in computer science. As the subject matter encompassed under the heading of computer science has great range and variety, so the master's degree program is very broadly conceived. Students with widely varying backgrounds and goals will find plans of study and research designed to meet their needs.

Two types of graduate work carried out in the Computer Science Section are distinguished. The basis for discriminating between these two is the degree of sophistication in computer science, mathematics and the physical sciences which is necessary to pursue the program. The Master of Science degree is associated with programs in which this level is relatively high. On the other hand, a great deal of advanced work in computer science is independent of the more theoretical aspects of mathematics and the physical sciences. The Master of Arts degree is associated with programs of the latter type.

While the Master of Science degree is designed for persons with strong preparation in computer science, mathematics, the natural sciences, or engineering, the Master of Arts degree will accommodate those with the broadest variety of undergraduate backgrounds and experience.

The great breadth of subjects which are part of computer science together with the immense diversity of its applica-

tions, make it imperative that students in the master's program maintain close contact with their advisers in order to achieve a coherent program directed toward a specific goal. In particular, elections of courses should never be made without prior consultation and approval of the adviser.

Admission to Graduate Study

There are several general University requirements which must be satisfied. All students seeking entrance to this program must initially meet those requirements. See the section on Liberal Arts Graduate Information and the Graduate Division section of this bulletin.

In addition, in order to enter the Master of Arts or Master of Science degree programs, the applicant must have:

1. A knowledge of computer science equivalent to that obtained in Computer Science 0201, 0220 or 0280, 0221, 0440, and 0510.
2. Mathematical preparation equivalent to that obtained from either Mathematics 0500, 0501, 0502, 0503, and 0506, or 0211, 0213, 0215, 0221, and 0506.
3. Students planning to pursue some of the more technical courses may find it necessary to have undergraduate preparation in multivariable calculus (Mathematics 0212, 0214), differential equations (Mathematics 0519), and other higher level mathematics. A careful examination of prerequisites of advanced courses in the student's area of special interest is recommended before seeking admission.

It is strongly recommended that the students entering the Master of Science program should have an undergraduate degree in computer science, mathematics or one of the natural or engineering sciences.

GRADUATE DEGREES

All graduate degrees are governed by general University regulations. Information concerning these may be found in the Graduate Division section of this bulletin. Degree applicants are expected to inform themselves concerning these regulations and to take the responsibility for conforming to them.

Many students in the master's program may be interested in the inter-relations of computer science with other specific fields. This interest is encouraged. Students will be allowed to elect up to twelve credits of cognate work toward their computer science degree. Cognate course credit cannot be used to satisfy degree requirements unless the course has been approved by the adviser as being consonant with the goals of the individual program. Departmental requirements for specific graduate degrees in computer science follow.

MASTER OF ARTS

The requirements for the Master of Arts degree with a major in computer science are as follows:

1. Forty-eight credits earned in accordance with Plan A or forty-five credits in accordance with Plan B. These plans are described under "7" below.

2. Election of all of the following courses not previously completed: Computer Science 0520, 0530, 0540, 0545, 0610.

3. Election of at least two courses from: Computer Science 0550, 0555, 0560 or 0561, 0565, 0620.

4. Election of at least one course from: Computer Science 0562, 0563, 0585, 0630, 0640, 0645, 0665, 0670, 0675, 0680, 0685.

5. Three credits in Computer Science 0595.

6. By the time eighteen credits have been earned, a *Plan of Work*, approved by a department adviser, should be submitted to the director of the master's program in computer science. At this time the Computer Science Graduate Committee will act on the application for candidacy. The student will not be allowed to take more than eighteen credits in the master's program unless candidacy has been established.

7. In the *Plan of Work* the student will state his choice of one of the following plans:

Plan A — Completion of a thesis for twelve credits with the remaining credit earned in course work.

Plan B — Completion of an essay for four credits with the remaining credit earned in course work.

The choice of plan must be approved by the Computer Science Graduate Committee.

MASTER OF SCIENCE

The requirements for the Master of Science degree with a major in computer science are as follows:

1. Forty-eight credits earned in accordance with the plan described under "7" below.

2. Election of all of the following courses not previously completed: Computer Science 0520, 0530, 0540, 0545, 0561, 0610.

3. Election of at least two courses from: Computer Science 0550, 0555, 0560, 0562, 0565, 0585, 0620, 0630, 0645, 0670, 0680, 0685. See guidelines under "5" below.

4. Election of at least two courses from: Computer Science 0563, 0640, 0646, 0665, 0675, 0682, 0720, 0722, 0730, 0740, 0760, 0768. See guidelines under "5" below.

5. The student is expected to select his course work so as to concentrate his studies in one area of computer science. The following areas provide meaningfully structured programs and are intended to serve as a guideline for the student in preparing his program. Other areas of computer science may be of interest and could be considered acceptable. The final choice of a plan should be prepared in consultation with an adviser.

Artificial Intelligence: Computer Science 0555, 0680, 0682; Psychology 0708.

Compiler Design: Computer Science 0620, 0645, 0646, 0725.

Hardware: Computer Science 0530, 0550, 0630, 0730.

Language Theory: Computer Science 0520, 0610, 0620, 0685, 0720, 0722, 0725.

Numerical Methods: Computer Science 0561, 0562, 0563, 0670, 0760; Mathematics 0586.

Operating Systems: Computer Science 0540, 0545, 0580, 0585, 0640, 0740, 0768, 0775.

Optimization: Computer Science 0670, 0675; Mathematics 0586.

Simulation: Computer Science 0560, 0565, 0665, 0682, 0768.

6. By the time eighteen credits have been earned, a *Plan of Work*, approved by a department adviser, should be submitted to the director of the master's program in computer science. At this time the Computer Science Graduate Committee will act on the application for candidacy. The student will not be allowed to take more than eighteen credits in the master's program unless candidacy has been established.

7. Completion of Plan A consisting of a thesis for twelve credits with the remaining credit earned in course work.

NOTE—Candidates for the Master of Arts and Master of Science degrees with a major in computer science are exempt from the requirement that eight credits in the major field must be in courses numbered 0700 and above.

Recommended Elective Courses—Several departments offer courses which are related to computer science. Students who need elective credit and wish to pursue these related courses should have approval of their adviser.

In particular, for those students interested in pursuing additional work in mathematics, the following courses are recommended electives: Mathematics 0514, 0542, 0555, 0581, 0582, 0583, 0586, 0587, 0591, 0612, 0618, 0700, 0701.

COURSES OF INSTRUCTION¹ (CSC)

Undergraduate Courses

0201. Introduction to Computer Science. Cr. 4.

No credit after former MAT 0279 or 0280 or CSC 0280. Prereq: one and one-half units of high school algebra. Fundamental concepts of computer science; concepts of machines, algorithms, higher and lower level languages, problem solving using such languages.

0220. Concepts of Computer Science I. Cr. 4.

No credit after CSC 0280 or former MAT 0279 or 0280. Prereq: CSC 0201 or equiv. Formulation and coding of algorithms for digital computers; coding and checkout of elementary problems for business, engineering, mathematics; use of computer in simulation.

0221. Concepts of Computer Science II. Cr. 4.

Prereq: CSC 0220 or 0280 and consent of instructor. Concepts of recursion, block structure, storage classes, interrupts, bit and string manipulation; the PL/I programming language.

0280. Introduction to Numerical Algorithms. Cr. 2.

No credit after CSC 0220 or former MAT 0279 or 0280. Prereq: MAT 0212. Formulation and coding of algorithms for digital computers; coding and checkout of elementary programs for engineering and mathematics problems; use of computers in simulation. Some elementary numerical analysis.

0285. Introduction to Digital Computing. Cr. 4.

No credit after CSC 0220 or 0280; only 2 credits after CSC 0201. Prereq: MAT 0180. Problem solving; problem formulation, analysis and design of algorithms; data representation; use of flow charts and the FORTRAN programming language in implementing algorithms; introduction to computer systems; use of the MTS command language.

0286. Introduction to Data Processing. Cr. 4.

Prereq: CSC 0201. COBOL programming; survey of business applications and examples; file organization and access methods; data base system concepts.

0320. Survey of Higher Level Languages. Cr. 3.

Prereq: CSC 0221. Syntax and semantics of certain special purpose and universal programming languages; formulation and coding of non-numerical algorithms for digital computers; coding and checkout.

0395. Problems Solving Laboratory. Cr. 1-4 (Max. 9).

Prereq: CSC 0220 or 0280 or consent of instructor. Term projects related to areas of interest.

0440. Introduction to Assembler Languages. Cr. 4.

Prereq: CSC 0221 or 0280 and consent of instructor. Machine languages and basic assembler languages; the realization of algorithms in basic assembler language using the assembler language of the available machine (IBM S/360); the internal representations of data; character, integer, decimal, and floating point; binary, decimal, and floating point arithmetic.

0460. Introduction to Numerical Methods. Cr. 4.

No credit after MAT 0571. Prereq: CSC 0220 or 0280, and MAT 0215. Numerical methods in the solution of equations and systems; interpolation and approximations; differentiation and integration; ordinary differential equations.

0495. Professional Practice in Computer Science. Cr. 1 (Max. 4).

Prereq: junior or senior standing and consent of co-op coordinator. Open only to students in Computer Science Co-Op Program. Offered for S and U grades only. Review of computer science practical experiences resulting from participation in the cooperative work-study program.

Undergraduate and Graduate Courses

0501. Computers and Research (U.P. 0552). Cr. 4.

No credit after CSC 0220; no credit for computer science majors. Prereq: one and one-half units high school algebra. Introduction to computing, data processing, and computer utilization for research; computer languages, library programs and their use; job control languages.

†0503. Computers in Statistical Data Analysis. (3,1). Cr. 4.

Prereq: CSC 0220 or 0501 or consent of instructor. Basic concepts of correlation, testing hypotheses, chi square t and f statis-

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

† May not count toward a graduate major in this department, but may be elected for minor or cognate credit.

tics, linear regression, analysis of variance and discriminant analysis using SPSS, OSIRIS and CONSTAT packages to solve typical problems in social sciences and other areas of interest; understanding and interpreting the output.

†**0505. Computers in Scientific Applications. (3,1). Cr. 4.**

No graduate credit for computer science majors. Prereq: CSC 0220 or 0280 or 0501 or consent of instructor. Sub-programs; modular program design; introduction to computer graphics and the use of the calcomp plotter; use of scientific sub-routine packages in matrix operations, interpolation, sums and limits of series, and generation of random variables.

0510. Introduction to Data Structures. Cr. 4.

No credit after MAT 0574. Prereq: CSC 0221 and MAT 0213 or 0502. Linear lists, strings, arrays, orthogonal lists, trees and graphs; storage systems and structures; storage allocation; sorting and searching techniques; applications to programming languages.

0520. Programming Languages. Cr. 4.

Prereq: CSC 0440. Coreq: CSC 0510. Existing programming languages; structure of simple statements, global structures of algorithmic languages and storage allocation. Formal descriptions of syntax and semantics of programming languages; correctness of programs.

0530. Elements of Computer Design I. (3,2). Cr. 4.

Prereq: CSC 0440. Switching algebra; realization of switching functions; analysis, design and minimization of combinational logic; analysis and design of sequential circuits; hazard and race analysis.

0540. Advanced Assembler. Cr. 4.

Prereq: CSC 0440. Assembler macro languages and macros; the use of macros in the realization of algorithms; supervisor services; techniques of communication with supervisors; interrupt processing; privileged instructions and storage protection; input and output techniques; channel programming.

0545. Introduction to Operating Systems. Cr. 4.

Prereq: CSC 0440. Services provided by operating systems and their underlying concepts. Batch, multi-programming, and time-sharing systems; job control languages; program loading; data management; concurrent processes; deadlocks, mutual exclusion, and synchronization; virtual memory; resource allocation; protection.

0550. Teleprocessing and Telecommunications. Cr. 4.

Prereq: CSC 0540 and MAT 0580. Communication line characteristics; modems; synchronous and asynchronous line protocols; error detection schemes; elements of information theory, Huffman codes, Hamming distance, and Polynomial codes; considerations in the design of telecommunication systems.

0555. Introduction to Statistical Pattern Recognition. Cr. 4.

Prereq: MAT 0221, CSC 0221, or consent of instructor. Decision rules in pattern recognition; problems in supervised and unsupervised learning; feature selection; non-parametric methods; clustering techniques; small sample-size problems.

0560. Discrete System Simulation. Cr. 4.

Prereq: CSC 0510 and MAT 0221 or 0504. Simulation, its tools and techniques; formulation, implementation and validation of models; applications.

0561. Numerical Analysis I. Cr. 4.

No credit after MAT 0572. Prereq: CSC 0460. Accuracy and efficiency of numerical methods by digital computer; iterative solution of non-linear equations and systems; interpolation and approximations; numerical differentiation and integration; difference equations.

0562. Numerical Analysis II. Cr. 4.

No credit after MAT 0571. Prereq: CSC 0561 and MAT 0213. Matrix operations; evaluation of determinants; solution of systems of linear equations and matrix inversion; calculation of eigenvalues and eigenvectors.

0563. Numerical Analysis III. Cr. 4.

No credit after MAT 0573. Prereq: CSC 0562 and MAT 0519. Numerical solution of ordinary differential equations; difference methods in partial differential equations.

0565. Continuous System Simulation I. Cr. 4.

Prereq: CSC 0460 and MAT 0519. Comprehensive survey of the application of digital and analog computers to the simulation of systems governed by ordinary differential equations; system formulation; elements of digital and analog computer systems; numerical techniques.

0580. Large-Scale Software Development. Cr. 4.

Prereq: CSC 0540. Methods of constructing large software systems; dealing with frequent changes, many revisions, and many programmers.

0585. Information Organization and Retrieval. Cr. 4.

Prereq: CSC 0510. Hierarchy constructions; dictionary systems; statistical systems; syntactic systems; search strategies; I/O evaluation; automatic question answering; automatic abstracting.

0590. Directed Study. Cr. 1-5 (Max. 12).

Undergrad. prereq: consent of adviser and written consent of chairman; grad. prereq: consent of adviser, written consent of chairman and graduate officer. Individual study as agreed on by student and supervising faculty. Primarily for material not covered in regular courses.

0595. Advanced Problem Solving Laboratory. (0,1-4). Cr. 1-4 (Max. 9).

Prereq: consent of instructor. Problems on various topics.

0610. Theory of Automata. Cr. 4.

Prereq: MAT 0506. Finite state of automata; equivalence of machines; reduced machines; generalized and incomplete machines; relative power of classes of automata.

0620. Introduction to Formal Languages. Cr. 4.

Prereq: CSC 0520 and 0610. Grammars and types of formal languages; relationships between formal languages and automata; Turing machines, Markov algorithms, recursive functions, Church-Turing hypothesis; unsolvable problems.

0630. Elements of Computer Design II. Cr. 4.

No credit after MAT 0679. Prereq: CSC 0530. Binary and complement arithmetic; division and multiplication algorithms. Design of adders; serial and parallel operation; principles and organization of storage devices; control synthesis and microprogramming. (Formerly CSC 0650.)

0640. Design of Operating Systems. Cr. 4.

Prereq: CSC 0510, 0540, and 0545. System control blocks; con-

† May not count toward a graduate major in this department, but may be elected for minor or cognate credit.

current processes; scheduling algorithms; file systems; implementation of virtual memory; pertinent hardware features.

0645. Structure of Compilers I. Cr. 4.

Prereq: CSC 0510 and 0520. Lexical analysis; syntactic analysis; syntactic error detection and correction; symbol tables; intermediate representation of programs.

0646. Structure of Compilers II. Cr. 4.

Prereq: CSC 0540 and 0645. Object code generation; global and local code optimization; description of semantics.

0665. Continuous System Simulation II. Cr. 4.

Prereq: CSC 0565. Mathematical formulation and computer techniques for the simulation of systems governed by partial differential equations; digital, analog, and hybrid methods and the use of problem-oriented simulation languages.

0670. Computational Aspects of Optimization. (3,1). Cr. 4.

No credit after MAT 0622. Prereq: CSC 0562, MAT 0586 or 0587 or equiv. Computer methods of solution in optimization theory; systematic and random search techniques; linear, non-linear and dynamic programming; gradient methods.

0675. Network Analysis. Cr. 3.

Prereq: CSC 0280, and MAT 0586 or 0587 or equiv. Interconnected points and lines; incidence and structural properties of finite graphs; Ford-Fulkerson theory on network flows; multi-commodity flows; selected applications.

0680. Artificial Intelligence. Cr. 4.

Prereq: CSC 0510 and MAT 0506. Heuristic programming; theorem proving; game playing programs; decision making programs; question answering programs.

0682. Introduction to Adaptive Systems. Cr. 4.

Prereq: CSC 0680, MAT 0221, or MAT 0580. Several natural and artificial systems proposed as models suitable for computer adaptation (learning under uncertainty); analysis of the extent of generality, feasibility, and efficiency of such models.

0685. Analysis of Natural Language. (3,1). Cr. 4.

Prereq: CSC 0620. Language structure; integrated generative language theory; automatic language analysis.

0699. Topics in Computer Science. Cr. 1-4 (Max. 12).

Prereq: senior or graduate standing and consent of instructor. Topics to be announced in Schedule of Classes.

Graduate Courses

0720. Formal Grammars and Syntactic Analysis. Cr. 4.

Prereq: CSC 0620. Grammars and automata; syntactic analysis; recognizers, analyzers, and generators.

0722. Formal Definition of Semantics. Cr. 4.

Prereq: CSC 0620. Models of the formal definition of programming language semantics; Vienna Definition Language (VDL); Lambda Calculus.

0725. Extensible Languages. Cr. 4.

Prereq: CSC 0646. Macro systems; syntactic extension; data type extension; operator extension; control extension; review of extensible language efforts, ECL, MAD, MAD/I, Algol-D.

0730. Computer Architecture. Cr. 4.

Prereq: CSC 0630 and 0640 or consent of instructor. Memory hierarchies, addressing schemes, virtual memory. Serial and parallel processors, multiprocessing, array processors. Cost analysis and economic consideration in computer design. Software hardware tradeoffs.

0740. Advanced Design of Operating Systems. Cr. 4.

Prereq: CSC 0640 and MAT 0580. Abstractions of operating systems; scheduling anomalies; special purpose scheduling algorithms; mechanisms for the control of concurrent processes; deadlock prevention; proving correctness of operating systems.

0760. Advanced Numerical Methods. Cr. 4.

Prereq: CSC 0563, MAT 0524. Initial and boundary value problems; convergence and stability of finite difference methods; numerical solution of integral equations; experiments with existing algorithms.

0768. Modeling and Measurement of Computer Systems. Cr. 4.

Prereq: CSC 0560, 0640, and IE 0671. Mathematical and simulation models of operating systems, hardware systems, and their components. Mechanisms for measuring system parameters; system tuning; prediction of the effect of proposed system changes.

0775. Administration of Computing Centers. Cr. 4.

Prereq: consent of instructor. Organization; pricing algorithms; equipment evaluation and procurement; reliability; management problems peculiar to computing centers.

0790. Directed Study. Cr. 1-5 (Max. 18).

Prereq: consent of adviser and graduate officer.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

0813. Advanced Topics in Computer Science. Cr. 3-6 (Max. 18).

Prereq: consent of instructor. Advanced topics of current interest.

0850. Computer Science Seminar. Cr. 1-4 (Max. 12).

Prereq: consent of instructor and adviser. Subjects of current interest and research; student reports.

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

Prereq: consent of adviser.

EAST EUROPEAN STUDIES

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

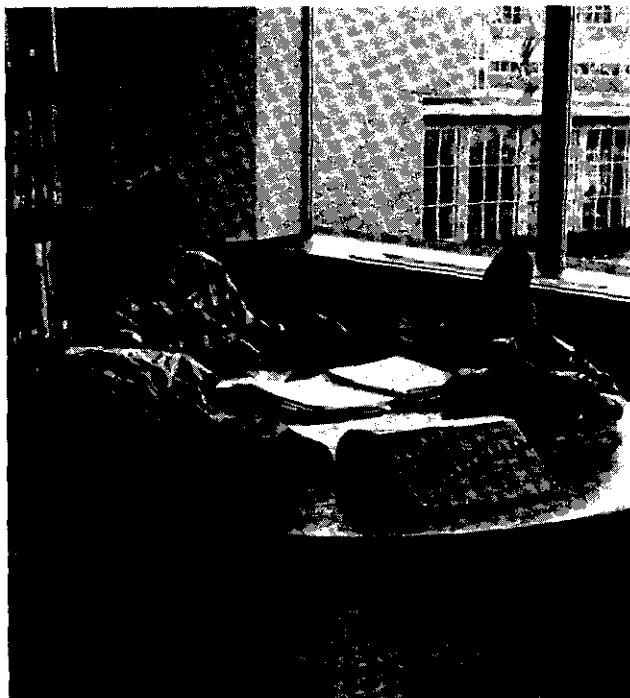
This major is comprised of courses offered by the several departments which provide instruction in East European studies: geography, history, political science, sociology, and Slavic and Eastern languages.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — Course elections must include four to twelve credits in advanced language training for research purposes, graduate courses in the Department of Slavic and Eastern Languages, a seminar, and additional courses selected from the following: Anthropology 0629; Economics 0576; Geography 0525, 0532, 0786; History 0559, 0560, 0561, 0562, 0566, 0567, 0888; Political Science 0505, 0506, 0706. The particular combination of courses will depend upon the student's interest and previous preparation.

An interdepartmental committee will advise the Chairman of the Department of Slavic and Eastern Languages in assisting the student to work out his program of study.

Before beginning research for the thesis, the student must have a reading knowledge of at least one East European language appropriate for the area and purpose of his research. The thesis and the research incident to it may be under the direction of a major adviser in any of the departments which provide instruction in East European studies or it may be under the direction of the Chairman of the Department of Slavic and Eastern Languages. A final oral examination is required.



ECONOMICS

Office: 960 Mackenzie Hall

Chairman: Douglas S. Paauw

Assistant Chairman: Gail E. Makinen

Academic Services Officer: Margot A. Calarco

Professors

David I. Fand, Ph.D., Thomas J. Finn, Jr., Ph.D., I. Bernard Goodman, Ph.D., Mark L. Kahn, Ph.D., Samuel M. Levin, Ph.D. (Emeritus), John M. Mattila, Ph.D., Douglas S. Paauw, Ph.D., Karl W. Roskamp, Ph.D., Lawrence H. Seltzer, Ph.D. (Emeritus), Wilbur R. Thompson, Ph.D., C. Emery Troxel, Ph.D. (Emeritus)

Associate Professors

R. King Adamson, Ph.D., Hossein G. Askari, Ph.D., †Howard Bourne, Ph.D., Jay H. Levin, Ph.D., Gail E. Makinen, Ph.D.

Assistant Professors

Nancy L. Baggott, Ph.D., Susan A. Bies, Ph.D., William A. Bomberger, Ph.D., Robert C. Dauffenbach, Ph.D., Georg Hasenkamp, Ph.D., David L. Horner, Ph.D., Steven M. Pease, Ph.D., Wayne J. Shafer, Ph.D., Richard E. Shaw, Ph.D., Miron Stano, Ph.D., Charles F. Stone III, Ph.D., William J. Weeks, Ph.D., Jerome M. Wolgin, Ph.D., Dennis Zimmerman, Ph.D.

DEGREE PROGRAMS

Bachelor of Arts — with a major in economics

Master of Arts — with a major in economics

Master of Arts in Teaching College Economics

Doctor of Philosophy — with a major in economics

(Also see Master of Urban Planning with specialization in economics, under Urban Planning)

Economic problems are of central importance in modern society, and all social problems have vital economic aspects or consequences. An understanding of economic relationships and systems is an indispensable part of a liberal education. Non-majors are invited to consult the Department of Economics about suitable cognate or elective courses.

Economics is an appropriate major for students who seek a better understanding of the modern economic world; for those who want a relevant background for careers in such fields as business, journalism, law, government or public service, and industrial relations; and for those who intend to become professional economists. Competent graduates trained in economics are in substantial demand at universities, large business and labor organizations, trade associations, and many governmental agencies. The Department of Economics offers degrees through the Ph.D. to prepare qualified students for these opportunities, and will assist majors and graduate students in locating suitable positions. Various financial aids,

† Deceased

including teaching assistantships and fellowships, are available for qualified graduate students in residence.

Students who are considering an economics major should elect Economics 0101 and 0102 as soon as possible, preferably in the freshman year. They are also advised to pass Mathematics 0150 or 0180 prior to the junior year unless they demonstrate eligibility for Mathematics 0211 or 0500 in the mathematics qualifying examination.

Students who contemplate graduate work in economics should undertake either the Mathematics 0211 or 0500 sequence as early as is feasible, and should consult with an undergraduate adviser in economics as to which sequence is preferable.

BACHELOR OF ARTS

Major Requirements and Electives—A major consists of forty-eight credits in economics. These must include: Economics 0101 and 0102—Survey of Economics; Economics 0501 and 0503—Economic Analysis; and Economics 0520 and 0521—Statistics. Majors are strongly advised to complete required courses in economics during their junior year.

Other courses are elective, but the student must elect at least one from each of three of the following fields: economic history and development; money and banking; public finance; international economics; industrial organization; labor and human resource economics; urban and regional economics.

A maximum of four credits in accounting may be counted for credit in economics.

The student should consult his major adviser to determine the economics electives that are best suited to his intellectual and professional aims. In particular, the adviser should be consulted on preparation for graduate work in economics; for industrial or commercial employment; and for governmental economics and statistics positions.

Cognate Courses—Economics majors should consult their adviser about recommended cognate courses. A suitable choice depends upon, and may vary considerably with the interests and objectives of the particular student. Courses in education are required of those who desire a Secondary School Teaching Certificate. Undergraduates who plan graduate study in economics are encouraged to elect mathematics. Courses in other social sciences are useful complements to economics. In some cases, up to sixteen additional credits in accounting may be elected for credit toward a liberal arts degree as cognate to a major in economics. (These may not be used to fulfill the forty-eight credits in economics required for the economics major.)

Combined Curriculum for Secondary Teaching—Economics majors wishing to enter secondary teaching should see this entry under Undergraduate Curricula in the Liberal Arts section for a description of the requirements and procedures for combining a degree in Liberal Arts with a teaching certificate. The major requirements as stated above must be completed.

Honors Program for Majors—An economics major who wishes to graduate with honors in economics, and who has a

strong academic record, should apply to the departmental honors adviser for admission to the economics honors program, not later than the first quarter of his junior year. Economics 0498, Senior Honors Seminar (four credits per quarter for three quarters), must be taken during the senior year (or during the student's last full academic year prior to graduation). Honors 0483, Economic Issues, is recommended. 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. References are required from people with whom the applicant has most recently taken academic work.

Preliminary Course Requirements—All students admitted to the Masters program in Economics must complete the following courses if these courses (or their equivalents) have not been completed when the student was an undergraduate:

ECO 0501. Intermediate Economic Analysis I

ECO 0503. Intermediate Economic Analysis II

ECO 0520. Economic and Business Statistics I

ECO 0521. Economic and Business Statistics II

No graduate credit may be earned for Economics 0520. The student may earn graduate credit for either Economics 0501 or 0503, but not for both.

Candidacy—To be eligible for candidacy, the student must file a *Plan of Work*, approved by the masters program adviser, with the graduate officer of the College of Liberal Arts. Candidacy will not be authorized unless the applicant's honor point average is 3.0 or better.

Generally, students enrolled in masters degree programs are expected to file a *Plan of Work* by the time twelve to eighteen graduate credits have been earned. The applicant should petition the masters program adviser to advance his rank to "Candidate."

Degree Requirements—The Department of Economics offers three alternative plans under which the M.A. Degree may be earned. With the approval of the M.A. program adviser, the student must choose one of these options by the time eighteen graduate credits have been earned:

Plan A (Thesis)—Forty-eight graduate credits are required, including a total of twelve credits earned by writing a thesis. At least three courses (twelve credits) must be completed at the 0700 or 0800 level, one of which must be either Economics 0700 or 0701. In addition, either Economics 0574 or 0720 must be elected.

Plan B (Essay)—Forty-eight graduate credits are required, including a total of four credits earned by writing an essay. At least three courses (twelve credits) must be completed at the 0700 or 0800 level, one of which must be either Economics 0700 or 0701. In addition, either Economics 0574 or 0720 must be elected.

Plan C (No thesis or essay) — Forty-eight graduate credits are required, including Economics 0700, 0701, 0720 or 0574 and at least three other 0700 or 0800 level courses in economics.

A final oral examination is required for all three plans (A, B and C).

Master of Arts in Teaching College Economics

The regular requirements, above, must be met. Students should take Economics 0791, 0792, and 0794. (TED 7851, 7852, and 7853) as partial fulfillment of their course requirements.

DOCTOR OF PHILOSOPHY

In addition to the admission requirements and procedures of the Graduate Division, the Graduate Record Examination and three letters of recommendation are required of all applicants to the Ph.D. program. Letters of recommendation must be from officials or teaching staff of the institution(s) most recently attended.

All applications for admission to the doctoral program in economics must have the approval of the department's admissions committee. Applications will be considered from superior students with degrees in areas other than economics. The Ph.D. is a scholarly degree, indicating not merely superior knowledge of economics but also intellectual initiative and an ability to design and carry out independent research. Students in their pre-candidacy stage will be judged on the basis of these attributes as well as on their grade-point performance.

Admission to candidacy for the doctoral degree will usually require at least two years of full-time graduate study beyond the bachelor's degree. No part-time students are permitted in the Ph.D. program. Candidacy is granted upon fulfillment of the following requirements:

(1) Special proficiency in economic theory and in two of the following eight fields: economic history and development; money and banking; public finance; industrial organization; quantitative methods; labor and human resource economics; urban and regional economics; and international economics. Proof of proficiency is successful completion of the written and oral qualifying examinations for Ph.D. candidacy in economic theory and the two other selected fields.

(2) Proficiency in one of the following foreign languages is required: French, German, Russian or Spanish. Proficiency may be demonstrated by either of the following: (a) satisfactory performance on a standardized (ETS) examination, or on a special on-campus examination in any language not tested by ETS; or (b) satisfactory completion (grades of C or better) of two years of course work (four semesters or six quarters) at any accredited college or university in the language offered to meet the Ph.D. requirement.

(3) Demonstration of basic competence in quantitative methods (Economics 0720 and 0722). Doctoral students who have not had equivalent mathematics will be required to take Mathematics 0500, 0501 and 0502.

Cognate Fields — One cognate field from other subject areas in rare cases may be substituted for one of the two elective fields with prior departmental approval.

Course Credit and Residence Requirements — Students are referred to the graduate academic regulations for the general course credit and residence requirements for the Ph.D. degree. The departmental graduate committee should be consulted for special requirements.

The Doctoral Dissertation — The doctoral candidate is required to submit a doctoral dissertation on a topic satisfactory to his Faculty Dissertation Committee and designed to test his proficiency in economic analysis, his capacity for independent and creative research, and his 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 Division procedures.

Fellowships and Assistantships — Fellowships and graduate assistantships in teaching or research are available each year to qualified graduate students. Those interested in applying should contact the Department of Economics by February 15 of the preceding academic year, although later applications will be considered on the basis of available opportunities. The department also sponsors qualified Wayne State students in applying for graduate fellowships to public and private national foundations and other fellowship granting agencies.

COURSES OF INSTRUCTION¹ (ECO)

Courses numbered 0700 and above are ordinarily open only to graduate students; however, qualified seniors may, with prior departmental and dean's approval, be admitted to courses in the 0700-0799 range.

Introductory Economics

Economics 0101-0102-0103 is a single full-year sequence especially recommended for prospective majors.

0101. Survey of Economics I. Cr. 4.

Scope of economics and the task of the economist in modern society. Problems of unemployment and inflation; money, banking, price level; public policies to promote stability and growth. This is the recommended course for students who plan to elect only one course in economics.

0102. Survey of Economics II. Cr. 4.

Supply, demand, price at level of the firm and industry; business institutions and their operation; determinants of wage and salary levels, interest rates, rent, profits, income distribution; public policy in relation to business and labor.

0103. Survey of Economics III. Cr. 4.

Prereq: ECO 0101. International trade and finance; the problems of economic development; planned- versus private-market economic systems.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

Field A—Economic Theory

0501. Intermediate Economic Analysis I. Cr. 4.

Prereq: ECO 0102, MAT 0150 or 0180 or equiv. based on satisfactory score in mathematics placement examination. Theory of the firm and consumer. Analysis of a price system as a means to efficient allocation of productive resources.

0503. Intermediate Economic Analysis II. Cr. 4.

Prereq: ECO 0101, MAT 0150 or 0180 or equiv. based on satisfactory score in mathematics placement examination. Theory of national income determination. National output and income, savings and capital formation.

0573. Introduction to Mathematical Economics I. Cr. 4.

Prereq: ECO 0501 and MAT 0211 or 0500. Basic mathematical methods applied to economic analysis, including elementary applications of calculus, analytical geometry, differential and linear equations. Problems to illustrate applications in production functions, cost minimizing, profit maximizing, demand theory.

0575. History of Economic Thought. Cr. 4.

Prereq: ECO 0501 and 0503. Development of economic thought; important contributions to development of economic theory since 1750.

0576. Socialist Economic Thought. Cr. 4.

Prereq: ECO 0101 and 0102. Development of socialist theory with emphasis on Marx and his followers.

0673. Introduction to Mathematical Economics II. Cr. 4.

Prereq: ECO 0503, 0573, and MAT 0501. Continuation of Economics 0573. Applications of differential and difference equations and the calculus of variations to problems in growth and capital theory.

0678. Programming and Game Theory. Cr. 4.

Prereq: ECO 0573 and MAT 0502. Linear and non-linear programming with applications to the theory of the firm and to resource allocation problems. Two-person game theory as an introduction to decision making under uncertainty. Completes a sequence (Economics 0573 and 0673) which provides a comprehensive introduction to basic mathematical methods employed in economic theory.

0700. Price and Allocation Theory. Cr. 4.

Prereq: ECO 0501 or consent of instructor. Advanced theory of the firm and industry, resource allocation and factor pricing in competitive and non-competitive market structures.

0701. Advanced Macroeconomic Theory. Cr. 4.

Prereq: ECO 0503 or consent of instructor. The economy as a whole; distribution of income; determination of level of national activity.

0773. Mathematical Economics. Cr. 4.

Prereq: calculus or equiv.; consent of instructor. Use of mathematics in exposition of problems in economic theory. Models of the economy are developed.

0775. Seminar in History of Economic Thought. Cr. 4.

Prereq: consent of instructor. Advanced inquiry into development of economic doctrine. (This course is also considered a Field B elective.)

0776. Seminar in Theory of Economic Growth. Cr. 4.

Prereq: ECO 0701 or consent of instructor. Dynamic equilibrium, modern and historical growth models, dynamic models of resource allocation.

0800. Seminar in Microeconomic Theory. Cr. 4.

Prereq: ECO 0700 or consent of instructor. Theory of various market forms, welfare economics, theory of factor productivity, theory of capital.

0801. Seminar in Macroeconomic Theory. Cr. 4.

Prereq: ECO 0701 and MAT 0501, or consent of instructor. Theory of dynamic models, growth models, business cycle models.

0850. Seminar on Selected Advanced Problems in Microeconomics. Cr. 4.

Prereq: ECO 0800 or consent of instructor. Topics in theory of rational decisions, capital theory, welfare economics; emphasis on recent developments.

0851. Seminar on Selected Advanced Problems in Macroeconomics. Cr. 4.

Prereq: ECO 0801 or consent of instructor. Topics in general equilibrium theory and in economic dynamics; emphasis on recent developments.

Field B—Economic History and Development

0504. Introduction to Development Economics. Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. National poverty and economic growth viewed from an historical and theoretical perspective; particular emphasis on national and international policies.

0543. Comparative Economic Systems. Cr. 4.

Prereq: 0101 and 0102 or consent of instructor. Comparative analysis of capitalism, socialism, communism; emphasis on differences in pricing, allocation of resources, functional and personal distribution of income, economic planning.

0561. Economic Development of the United States. Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. Determinants of economic growth in the United States since its colonial beginnings.

0562. Economic History of Africa. Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. Economic development of sub-Saharan Africa from prehistoric times to the present; emphasis on the colonial period.

0563. Economic Development of Africa. Cr. 4.

Prereq: ECO 0504 or consent of instructor. Contemporary problems of African development in the context of modern development theory.

0703. Historical Perspective of Development. Cr. 4.

Prereq: consent of instructor. Development history of several advanced countries, emphasizing growth of population, product, structure of output and distribution of income. Stage models and other historical approaches to economic development.

0704. Theory of Economic Development. Cr. 4.

Prereq: consent of instructor. Development theory emphasizing closed and open dualism and intersectoral interaction during the development process.

0724. Development Policy and Planning. Cr. 4.

Prereq: consent of instructor. Crucial policy decisions facing developing nations such as the extent and types of planning to be used; resource allocation among sectors and commercial policy.

0804. Seminar in Economic History and Development. Cr. 4.

Prereq: consent of instructor. Selected topics in nineteenth century industrialization. Agriculture-industry interrelations, international migration of capital and labor, secular trends in prices and output. Similarities and contrasts with contemporary industrializing economies.

0805. Seminar on Selected Topics in Economic Development. Cr. 4.

Prereq: consent of instructor. In-depth analysis of a few of the following: agriculture, migration, population growth, import substitution, planning, foreign assistance, education and regional cooperation.

0824. Dissertation Workshop in Development. Cr. 4 (Max. 12).

Prereq: completion of qualifying examination in economic history and development. Evaluations of proposed and current research in economic history and development.

Field C—Money and Banking

0505. Money and Banking I. Cr. 4.

Prereq: ECO 0101. Role of the Federal Reserve System, the commercial banks, and the non-bank public (including financial intermediaries) in determining the money supply; central banking and techniques of monetary control; indicators and targets of monetary policy; and how money affects economic activity.

0506. Money and Banking II. Cr. 4.

Prereq: ECO 0503 and 0505. Structure and functioning of money and capital markets, objectives and techniques of central banking, use and limitations of monetary policy as a tool for furthering full employment, and such current problems as management of public debt, avoidance of inflation or deflation.

0705. Seminar in Monetary Policy. Cr. 4.

Prereq: consent of instructor. Objectives, mechanisms, economic effects of alternative monetary and banking policies; interrelations of the latter with fiscal policies. Recent American and foreign experience, proposed changes in domestic monetary and banking structure, relation of monetary and banking structures, relation of monetary policy to business fluctuations, problems arising from the International Monetary Fund and Bank.

0706. Seminar in Monetary Theory. Cr. 4.

Prereq: consent of instructor. Development of monetary theory; present theories of relations between money, prices, national income; methods of monetary control employed by governmental authorities; current controversies.

0717. Seminar in Monetary and Fiscal Policy. Cr. 4.

Prereq: ECO 0706 or 0715 or consent of instructor. Effects of alternative government financial policies on stability and growth of income and employment, on price level; criteria for determining optimum expenditure levels and patterns. (This course is also considered a Field D elective.)

0806. Seminar in Leading Problems in Monetary and Fiscal Policy. Cr. 4.

Prereq: consent of instructor.

0807. Workshop in Monetary Economics. Cr. 4-8.

Prereq: consent of instructor. Advanced research seminar with subject determined by the specialized interests and skills of participants and in light of national and international developments in monetary affairs.

Field D—Public Finance

0513. Introduction to Public Finance: Taxation. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Role of 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. (Formerly ECO 0614).

0514. Introduction to Public Finance: Expenditures. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Role of government in a market economy; nature of public expenditures and their historical development; influence of government expenditures on resource allocation, income distribution, economic stability and growth; problems of public debt.

0515. State and Local Finance (UP 0525). Cr. 4.

Prereq: ECO 0102 or consent of instructor. Taxation, expenditure and debt management problems of state and local governments; grants-in-aid, subsidies, shared revenues and coordination of the financial policies of federal, state and local governments. Attention to problems, policies, and practices of governmental units in Michigan and neighboring states.

0714. Public Finance I. Cr. 4.

Prereq: ECO 0514 or consent of instructor. Problems of budgeting, government expenditure, incidence shifting, tax effects, national debt, stabilization and economic growth.

0715. Public Finance II. Cr. 4.

Prereq: consent of instructor. Continuation of Economics 0714.

0814. Seminar in Public Finance. Cr. 4.

Prereq: consent of instructor. Selected topics in public finance and research problems.

0815. Dissertation Workshop in Public Finance. Cr. 4 (Max. 12).

Prereq: completion of qualifying examination in public finance. Evaluations of proposed and current research in public finance.

Field E—International Economics

0537. International Economic Relations. Cr. 4.

Prereq: ECO 0102 or 0103. 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.

0538. International Finance and Investment. Cr. 4.

Prereq: ECO 0537. Problems, techniques, policies; foreign exchange systems; payment mechanisms; international monetary organizations; foreign financial policy of the United States; major international debtors and creditors; international investment problems; recent issues.

0730. Advanced International Trade Theory I. Cr. 4.

Prereq: consent of instructor. The "pure" theory of international trade: classical and modern models of the determinants of international trade and their empirical verification. (Formerly ECO 0737.)

0732. Advanced International Trade Theory II. Cr. 4.

Prereq: ECO 0730. Commercial policy: general free trade case; tariffs and theory of optimum trade intervention; customs union theory; effective protection.

0734. Advanced International Monetary Economics I. Cr. 4.

Prereq: consent of instructor. Foreign exchange market; balance of payments adjustment to income change; devaluation theory; pure gold standard; stabilization policies in open economies; economic growth and the balance of payment. (Formerly ECO 0738.)

0735. Advanced International Monetary Economics II. Cr. 4.

Prereq: ECO 0734 or consent of instructor. Forward exchange; international financial capital movements; the Eurodollar market; the confidence and liquidity problems of pegged exchange rate systems; monetary union; flexible exchange rates.

0830. Seminar-Workshop in International Economics. Cr. 4.

Prereq: consent of instructor. Selected issues in international economic theory and policy. (Formerly ECO 0837.)

Field F—Industrial Organization

0508. Public Control of Business. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Combination movement, pricing and output controls by industrial management, laws against monopolies, public restrictions on competition, patent policy and experiences with nationwide control.

0517. Economics of Public Utilities. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Public regulation of earnings, prices, services. Financing of public utility companies; public production of utility services, particularly federal production of electricity. Economic and legal study of production and regulation.

0519. Industry Economics. Cr. 4.

Prereq: ECO 0102. The structure of industry: concentration, barriers to entry, pricing practices, and market performance.

0535. Economics of Transportation. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Problems in railway, highway, air transportation, and urban transit systems. Development of public regulation, financial problems, coordination of different transportation services.

0708. Seminar in Anti-Trust Controls. Cr. 4.

Prereq: ECO 0508 or equiv. or consent of instructor. Relationships of anti-trust laws to such economic questions as entries of firms, economics of size, mergers, market control and structure, oligopoly behavior, patent holdings, pricing controls.

0719. Seminar in Industrial Economics. Cr. 4.

Prereq: ECO 0700 or consent of instructor. Industrial competition and concentration. Theories of the firm: price-output decisions under imperfect competition, non-profit maximization and uncertainty. Imperfect competition: market structure and firm interrelationships. Market relationships: measures of concentration and monopoly.

Field G—Labor and Human Resource Economics

0541. Labor Problems I (S W 0713). Cr. 4.

Prereq: ECO 0101. Our changing labor force; development, structure, and philosophy of United States unionism; collective bargain-

ing; bargaining power and the role of the strike; substantive union-management issues; public labor policies.

0549. American Labor History (HIS 0543). Cr. 4.

Prereq: ECO 0101 or consent of instructor. Development of the American labor movement; its behavior in the contemporary scene. Labor's experiments with social, political, legal, economic institutions. Comparisons with foreign labor movements.

0584. Economics of Social Welfare (S W 0707). Cr. 4.

Prereq: ECO 0102 or consent of instructor. The economics of social welfare emphasizing the economic hazards facing the individual and the family in modern society; unemployment, disability, discrimination and other sources of poverty. Private and public approaches to solving these problems.

0641. Labor Problems II (S W 0714). Cr. 4.

Prereq: ECO 0102. Labor supply; causes and remedies for unemployment; labor mobility and the operation of labor markets; productivity and real wages; wage determination; human capital, income distribution, and economic development; poverty and its causes; economic impact of collective bargaining.

0741. Labor Economics and Wage Determination. Cr. 4.

Prereq: ECO 0501 and 0503 or consent of instructor. Labor force participation and composition; factors affecting wage levels (money and real) and wage structure; wage criteria, such as productivity, cost of living, ability to pay, wage comparisons; wage-price policy; economic effects of collective wage determination.

0742. Human Resources and Labor Markets. Cr. 4.

Prereq: ECO 0700 and 0574 or 0720 or consent of instructor. Theoretical and empirical analyses of aggregate labor supply and demand, occupational choice, labor mobility, investment in human capital, income inequality.

0743. Human Resources and Public Policy. Cr. 4.

Prereq: ECO 0700 and 0574 or 0720 or consent of instructor. Micro models of educational production and macro models which attempt to identify the effects of changes in human capital, discrimination and market imperfection. Evaluation of education, manpower, health and welfare programs.

0841. Seminar in Labor Economics. Cr. 4.

Prereq: ECO 0541 and 0741 or equiv. or consent of instructor. Intensive examination of selected topics involving economic analysis and public policy.

0842. Seminar in Human Resource Economics. Cr. 4.

Prereq: ECO 0742 or consent of instructor. Study and research on selected topics.

Field H—Quantitative Methods

0520. Economic and Business Statistics I. Cr. 4.

Prereq: ECO 0102; MAT 0150 or 0180 or equiv. based on satisfactory score in mathematics placement examination. Introduction to statistical inference; probability, including subjective probability; expected value and variance; sampling distributions and elementary problems of estimation and hypothesis testing.

0521. Economic and Business Statistics II. Cr. 4.

Prereq: ECO 0520 or MAT 0581 or equiv. Modern statistical inference theory applied to problems of index numbers and forecasting, time series, seasonal and cyclical variation; regression and correlation analysis with introduction to multiple regression analysis.

0574. Introduction to Econometrics. Cr. 4.

Prereq: ECO 0503 and 0521 or consent of instructor. Application of statistics and mathematics to the quantitative analysis of the position of and changes in the economy as a whole. Typical problems formulated as testable hypotheses. Models of the economy analyzed.

0720. Quantitative Methods in Economics. Cr. 4.

Prereq: ECO 0521 and MAT 0502 or equiv. Emphasis on the essential statistical and econometric tools for empirical testing of economic hypotheses.

0722. Advanced Econometrics I. Cr. 4.

Prereq: ECO 0720. Classical linear regression, problems of multicollinearity, autocorrelation, dummy variables. Introduction to simultaneous equation models.

0723. Advanced Econometrics II. Cr. 4.

Prereq: ECO 0722 or equiv. Simultaneous equation models. Identification problems, methods of estimation and their small sample properties.

0822. Seminar in Statistics and Econometrics. Cr. 4.

Prereq: consent of instructor. Topics in current developments. Emphasis on individual research.

Field I—Urban and Regional Economics

0586. Urban and Regional Economics I (U P 0582). Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. Introduction to urban economics; industrial structure, growth and development; income and employment characteristics of the population of urban places; economic foundations of the problems of cities — housing, land use, transportation, poverty and financing local public services.

0587. Urban and Regional Economics II (U P 0592). Cr. 4.

Prereq: ECO 0586. Economic determinants of the spatial distribution and interaction of person, firms, industries and urban places. Systems of cities and public policy relating to the size distribution of cities and the problem of urban-rural balance.

0592. Environmental Economics. Cr. 4.

Prereq: ECO 0101 and 0102. Economic and ecological aspects of principal pollution problems; U.S. and global perspectives; environmental legislation. Cost-Benefit analysis applied to pollution abatement. Economic theory of externalities, commons, public goods and optimum use of fixed national resources.

0786. Location, Space and Region. Cr. 4.

Prereq: consent of instructor. Economics of location and space; emphasis on spatial competition, evolution of regional hierarchies, linkages between regions. Techniques of regional analysis: base theory, local multipliers, input-output, gravity models, and econometric models.

0787. Seminar in Urban Economics. Cr. 4.

Prereq: consent of instructor. Selected contemporary urban economic problems: local public services and public finance in politically fragmented metropolitan areas; housing, blight and renewal; urban sprawl; the urban traffic problem; poverty and welfare; employment planning and area development.

0886. Workshop in Quantitative Urban Economics. (2,4). Cr. 4-8.

Prereq: ECO 0722 and consent of instructor; graduate standing in economics. Application of quantitative methods in urban economic research. Student participation in model building, estimation and testing.

Directed Readings, Thesis Direction, and Special Courses

0390. Directed Study. Cr. 2-4 (Max. 8).

Open to seniors having not less than twelve credits in economics of grade A or B. For the student who shows evidence of ability and interest in economic study and who desires opportunity for advanced reading in a special field. Arrange with adviser.

0450. Professional Practice in Economics. Cr. 1 (Max. 6).

Prereq: junior or senior standing and consent of coop. coordinator. 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.

0495. Current Economic Issues. Cr. 4.

Prereq: ECO 0101 and 0102. Selected economic issues of current interest studied in depth. Analysis of readings in specific area of public policy in economics.

0496. Research in Economics. Cr. 4-16 (Max. 16).

Prereq: approval of department prior to registration. Open to seniors having not less than twelve credits in economics with grade A or B. Economic research on an appropriate topic of the student's choice, conducted under faculty supervision.

0498. Senior Honors Seminar. Cr. 4 (12 required).

Prereq: economics honors program, senior standing, major in economics. Must be elected three successive quarters. Research methodology, reading and discussion in areas selected by the seminar instructor. A senior honors essay.

0791. (TED 7851) Problems and Methods of Teaching Economics in the Community College I. Cr. 3-4.

Prereq: TED 5851, 6853 or equiv.

0792. (TED 7852) Student Teaching of Economics on the Community College Level. Cr. 3-4.

Prereq: ECO 0791. Offered for S and U grades only.

0794. (TED 7853) Problems and Methods of Teaching Economics in the Community College II. Cr. 3-4.

Prereq: ECO 0791. Continuation of Economics 0791.

0795. Research in Economics. Cr. 2-12 (Max. 24).

Prereq: consent of adviser. Open to qualified graduate students who desire opportunity for research and directed study. May be conducted as seminar.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

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

Prereq: consent of adviser.

0997. Doctoral Research Seminar. Cr. 1.

Prereq: consent of doctoral adviser. Evaluations of proposed and current economic research.

0999. Doctoral Dissertation and Research.

Credits to be arranged. Prereq: consent of doctoral adviser.

ENGLISH

Office: 431 State Hall

Chairman: Marilyn L. Williamson

Vice Chairman: Edward Sharples

Academic Services Officers: Pearl Warn and
Katherine J. Mussard

Professors

Lester E. Dickinson, B.A. (Emeritus), Samuel A. Golden, Ph.D., Arnold L. Goldsmith, Ph.D., Leslie L. Hanawalt, Ph.D. (Emeritus), Keith Hollingsworth, Ph.D., Daniel J. Hughes, Ph.D., Thelma G. James, M.A. (Emeritus), Orville F. Linck, Ph.D. (Emeritus), Ralph L. Nash, Ph.D., Emilie A. Newcomb, Ph.D., Joseph Prescott, Ph.D., John R. Reed, Ph.D., Thomas C. Rumble, Ph.D., Herbert M. Schueller, Ph.D., Alfred Schwarz, Ph.D., Vern Wagner, Ph.D., Vincent C. Wall, Ph.D., †A. Dayle Wallace, Ph.D. (Emeritus), John Wilcox, Ph.D. (Emeritus), Marilyn L. Williamson, Ph.D., Beongcheon Yu, Ph.D.

Associate Professors

Alexander Brede, M.A. (Emeritus), Chester H. Cable, Ph.D., Mildred M. Connely, M.A. (Emeritus), Alva A. Gay, Ph.D., Isabel Graham, M.A., Patricia E. Hernlund, Ph.D., David S. Herreshoff, Ph.D., Bernard Levine, Ph.D., Donald MacDonald, Ph.D., Arthur F. Marotti, Ph.D., Jay W. McCormick, B.A., William E. Mockler, Ph.D., Edward Sharples, Ph.D., Paul Sporn, Ph.D., Philip J. Traci, Ph.D., Travis E. Trittschuh, Ph.D., Richard R. Werry, M.A.

Assistant Professors

John E. Bassett, Ph.D., Ellen R. Brown, Ph.D., Sherwyn T. Carr, Ph.D., Stephen T. Chennault, M.A., Bernyce Cleveland, M.A. (Emeritus), Alice T. Crathern, Ph.D. (Emeritus), Joanne V. Creighton, Ph.D., Todd Duncan, Ph.D., Bradford S. Field, Jr., Ph.D., Jeanne A. Flood, Ph.D., Constance J. Gefvert, Ph.D., Henry L. Golemba, Ph.D., Barry A. Gradman, Ph.D., John A. Gutowski, M.A., Ronald L. Harris, Ph.D., Josephine N. Keal, M.A. (Emeritus), Terrance J. King, Ph.D., Julie B. Klein, Ph.D., James D. Lindstrom, Ph.D., Archie K. Loss, Ph.D., Peter J. Nagourney, Ph.D., Kathleen M. O'Dowd, Ph.D., Richard N. Raspa, Ph.D., Amy K. Richards, M.A., Keith S. Sheppard, Ph.D., Elizabeth S. Sklar, Ph.D., Harry R. Smallemburg, Ph.D., Russell E. Smith, M.A. (Emeritus), Peter J. Stine, Ph.D., Robert M. Strozier II, Ph.D., Leonard W. Tennenhouse, Ph.D., Stephen H. Tudor, M.F.A., Robert B. Winans, Ph.D., Gregory R. Zeck, Ph.D.

Instructors

Michael K. Bequette, M.A., Colin S. Cass, M.A., William D. Darby, M.A., Raymond T. Hunter, M.A., Samuel L. Jenkins, M.A., Julie F. Jensen, M.A., Douglas P. Kevorkian, M.A., Faye Kicknosway, M.A., Artem Lozynsky, M.A., Al McNeil, M.A., Selma S. Meyerowitz, M.A., Daniel W. Minock, M.A.,

Jonathan I. Morse, M.A., Patricia S. Rigg, M.A., John A. Ruhlman, Ph.D., Chaman L. Sahni, M.A., Sheila Schurer, M.A., Dennis F. Todd, M.A., Daniel E. Turse, M.A., Alexandra V. Vogelbaum, M.A., Robert D. Wallin, M.A., Roy L. Weitzel, M.A., Jacqueline L. Zeff, M.A.

Assistant Professors — Writers in Residence

Samuel Astrachan, B.A. (Visiting), Esther M. Broner, M.A.

DEGREE PROGRAMS

Bachelor of Arts — with a major in English

Master of Arts — with a major in English

Master of Arts in Comparative Literature

*Master of Arts in Teaching English at the
Community College Level*

*Doctor of Philosophy — with a major in English and
specializations in American literature, English liter-
ature, literary criticism*

Freshman courses give an introduction to the literature and basic training in the nature and use of the English language. Courses at the 0200 level offer all students acquaintance with literature or language with emphasis on study of subjects of general interest; a composition program at this level is available for further experience with creative and expository writing. Courses numbered 0300-0699 (open as electives to all juniors and seniors) and courses numbered 0500-0999 (open to graduate students) offer more advanced study in language, literature and composition.

Students for whom English is a foreign language are assigned on the basis of their competence to English 0095, 0130, or 0150.

BACHELOR OF ARTS

The various programs for English majors furnish both a liberal education and fundamental training for careers. These programs prepare for careers in writing and publishing, governmental service at home and abroad, executive and secretarial work in business and industry; they prepare for training in such professions as teaching, medicine, religion, and law, and for graduate study in English and related fields.

Major Programs — The undergraduate major in English must elect a minimum of eleven courses (forty-four credits) in English beyond the English Group Requirement. These eleven courses must be numbered at the 0300 level or above, with the exception of English 0210. Additional courses may be elected within the college maximum of sixty-eight credits in a major. (The sixty-eight credits include the eight-credit English Group Requirement.) Although there are no requirements in the English major beyond the minimal forty-four credits, the department publishes a brochure with suggested programs in teaching, graduate school preparation, creative writing,

† Deceased.

and for those students who have a general, non-vocational interest in English as a major.

The department makes available a variety of kinds of courses, and encourages the undergraduate student to experience several of these kinds (for example, to elect a course centering on a single author, another course examining a single genre, another course examining a theme or technique employed by several authors perhaps in several literary genres, another course applying the historical approach to a given period in literary history).

To this end, the department provides advising both to English majors, through the Majors Advising Committee, and to non-majors, through the English Electives Advising Committee. As soon as possible and no later than the end of his sixth quarter, the prospective major should consult the chairman of the English Majors Committee to discuss his course of study.

The English Honors Program is designed for the student who can profitably undertake a program of independent study under the direction of an honors adviser. To be eligible for the Honors Program, a student must be able to write English clearly and effectively and must have an honor point average of at least 3.3. Ordinarily the student will enter this program at the beginning of his junior year.

English majors are not exempt from the Junior Proficiency Examination in Composition.

Honors Program Requirements

The English major who is admitted to the Honors Program works independently toward the comprehensive examinations in English and American language and literature which conclude his work. His independent study is supervised through the course for honors majors, English 0490, in which he may receive as many as thirty-six credits. Grades in English 0490 must be validated by performance in the comprehensive examinations. Two additional courses, as recommended by the adviser, at the 0300 through 0600 level are required. In his senior year, the honors major must submit a twenty-to-thirty-page honors essay. The College also requires the completion of one 0400-level interdisciplinary senior honors seminar. Interested students should consult a member of the English Honors Committee.

Combined Curriculum Requirements

Combined Curriculum for Secondary Teaching — An English major who wishes to prepare for a career in secondary school teaching must complete one of the English programs described above. His program must also include a course in expository writing, either English 0209 or 0515. Information regarding this curriculum is on p. 196.

Combined Degree with Dentistry or Law — Students who wish to major in English and receive the Bachelor of Arts degree at the end of their first year of study in dentistry or law are asked to complete six courses (twenty-four credits) in English at the 0300 level or above, beyond the English Group Requirement.

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-four credits in course work plus an essay.

Admission — Students who wish to register as graduate majors in English should consult the departmental M.A. adviser. Other members of the staff will give suggestions on the suitability of English courses for specific needs, but will not sign forms as advisers.

Degree Requirements — The student's graduate program should be planned to supplement his undergraduate preparation so that he will have made a reasonably complete survey of English and American language and literature. It must include English 0701, certain 0500 literature courses if not elected as a part of the undergraduate program, two studies courses, a final seminar or equivalent, and the thesis or essay, preferably in that sequence. With the consent of the departmental M.A. adviser the student may submit a major work of imaginative writing as a thesis for twelve credits.

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 committee, over-age credits may be revalidated.

Applicants for the degree must pass an examination in one foreign language, French, German, Greek, Italian, Latin, Russian, or Spanish.

Master of Arts in Comparative Literature

See page 232.

Master of Arts in Teaching English at the Community College Level

Plan B — Forty-four credits in course work plus an essay.

Admission — Students who wish to enter the Master of Arts program in teaching English at the community college level should consult the program adviser. Whenever possible, candidates will be interviewed before admission to the program.

Degree Requirements — This program prepares English teachers for situations and students unique to the two-year college. Work will be given in theory and field experience; students will have close contact with metropolitan community colleges and teachers. Candidates will study literature and language, theory of instruction, and will teach in area community colleges.

The student must elect twenty-four credits in language and literature courses (including English 0799) at or above the 0500 level. Required courses include English 0787 (eight credits) and 0788 (eight credits). The department requires a cognate of eight credits in course work on the graduate level in a related area outside the department.

The foreign language requirement may be met by passing an examination in one foreign language or by election of eight credits in English language courses.

DOCTOR OF PHILOSOPHY

Admission to the doctoral program in English is open to students of superior scholarship. The M.A. is the usual prerequisite to acceptance as a doctoral applicant.

Application credentials should be filed in the Graduate Division not less than three, and preferably five, months before the applicant plans to register for doctoral work. The applicant must also address a letter to the Chairman of the Departmental Committee on Graduate Admissions indicating his educational history, experience, financial resources, family responsibilities, interests, reading, aptitudes, and other matters which will enable the committee to evaluate his ability and qualifications.

Four letters of recommendation are required; forms indicating the kind of information desired may be obtained from the Chairman of the Departmental Committee on Graduate Admissions.

The foreign language requirement may be met in three ways: (1) by passing an in-depth examination in one language (usually French or German); (2) by passing examinations in two languages (usually French and German); (3) by passing an examination in one language and taking two courses in Anglo-Saxon.

The student must select his specialization before preparing his *Plan of Work*. The department does not require specific courses, with the exception of English 0701, but it does require that all courses offered for the doctorate be numbered 0600 or above, although certain exceptions may be approved by the departmental doctoral adviser with the permission of the Graduate Division.

The department requires a minor of twelve credits in course work on the graduate level in a related area outside the department.

A written Preliminary Qualifying Examination must be taken by the end of the first quarter following the M.A. or after forty-eight credits of graduate work, whichever comes first. A student entering the doctoral program with an M.A. from another university must take this examination by the end of his second quarter of course work.

After he has passed the Preliminary Qualifying Examination, the student recruits an advisory committee to assist him in planning a program of study covering both formal course work and independent reading in preparation for an individually-tailored Final Qualifying Examination and dissertation.

The Final Qualifying Examination, which must be taken within one calendar year after the completion of all course work, consists of:

1. A written examination covering areas agreed upon by the student and his committee.

2. An oral examination on the subject area of the student's proposed dissertation, to be given after he has passed the written examination.

A final oral presentation, after the dissertation has been completed, is also required. For a description of this, see p. 22.

TOMPKINS AWARDS

The Tompkins Awards, named for Frank G. Tompkins, first Professor of English in the University, are made annually to students submitting the best original, unpublished stories, plays, essays, or groups of poems.

COURSES OF INSTRUCTION¹ (ENG)

Freshman English Courses

0095. English for Foreign Students. Cr. 4.

No degree credit. Graded studies for students of foreign language background who need special work in recognition and production of university-level English. Students repeat course until they receive a grade of satisfactory (S), when they may elect English 0130 or 0150.

0130. Composition Seminar. Cr. 4.

Offered for S and U grades only; does not count toward fulfillment of English Group Requirement. Expository writing. Recommended for students needing instruction and practice in composition prior to election of English 0150.

0150. Freshman Literature and Composition. Cr. 4.

Introduction to selected major works in the English language. Instruction and practice in composition. Discussion and papers based on the reading.

0197. Freshman Honors: English I. Cr. 4.

Open only to students in Liberal Arts Honors Program. Freshman seminar in fiction, poetry and drama for Liberal Arts Honors students.

0297. Freshman Honors: English II. Cr. 4.

Open only to students in Liberal Arts Honors Program. Continuation of English 0197.

Introductions and Techniques

English 0150 is prerequisite to all higher-numbered English courses.

0209. Techniques of Expository Writing. Cr. 4.

Practice in expository composition. The writing of brief formal and informal essays. Emphasis on clarity, logical organization, effective diction, and individual style.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0210. Techniques of Imaginative Writing. Cr. 4.

Study and practice of the various forms of creative writing. Frequent individual conferences.

0220. Introduction to Contemporary English: Usage and Meaning. Cr. 4.

Ways in which our use of language affects communication. Means by which resulting personal, social and other problems may be solved.

0228. Introduction to Folklore. Cr. 4.

Survey of the chief genres.

0231. Introduction to Poetry. Cr. 4.

Reading and discussion of poems written in the English language. Topics to be announced in Schedule of Classes.

0232. Introduction to Fiction. Cr. 4.

Reading and discussion of short stories, novellas, and novels written in the English language.

0233. Introduction to Drama. Cr. 4.

Reading and discussion of plays. Topics to be announced in Schedule of Classes.

0240. Shakespeare. Cr. 4.

Introduction to Shakespeare, with emphasis on the dramatic and literary qualities of the plays. Usually six to nine plays are studied, giving experience with representative tragedies, comedies, and histories.

0275. Introduction to Afro-American Literature. Cr. 4.

Emphasis on literature of the twentieth century.

Surveys of Major Authors and Works

0225. Major Authors in World Literature to the Renaissance. Cr. 4.

Readings, in translation, from the literatures of Greece, Rome, the Orient, Medieval Europe.

0226. Major Authors in World Literature: Renaissance to Twentieth Century. Cr. 4.

Readings, in translation, from European and Oriental literature.

0227. Major Authors in World Literature: Twentieth Century. Cr. 4.

Readings, in translation, from Western and Oriental literature.

0234. The English Bible as Literature. Cr. 4.

The King James text as literary masterpiece and as background for English literature. Its influence in art and music.

0242. Major Authors in English Literature to the Nineteenth Century. Cr. 4.

0243. Major Authors in English Literature of the Nineteenth and Twentieth Centuries. Cr. 4.

0270. Major Authors in American Literature to the Twentieth Century. Cr. 4.

0271. Major Authors in American Literature of the Twentieth Century. Cr. 4.

(Formerly English 0279.)

Methods and Approaches for the Study of Literature

0305. Introduction to Literary Criticism. Cr. 4.

Approaches to the systematic study of literary works and problems: biographical, bibliographical, historical, structural, linguistic, psychological, sociological.

0330. Approaches to Comparative Literature. Cr. 4.

Prereq: knowledge of a foreign language at the intermediate level. Problems in a comparative approach to works in different languages: styles, literary movements, influences, traditions.

0360. Aims and Methods in the Study of Folklore. Cr. 4.

Problems in the study of folklore; introduction to techniques of collecting and analyzing materials; relations of oral tradition to written tradition in literature.

Intermediate Writing

0309. Intermediate Expository Writing. Cr. 4 (Max. 8).

Instruction and practice in writing essays. Emphasis on a particular subject, approach, technique or writing problem. Topics to be announced in Schedule of Classes.

0311. Apprentice Poetry Writing. Cr. 4.

Topics to be announced in Schedule of Classes.

0312. Apprentice Fiction Writing. Cr. 4.

Topics to be announced in Schedule of Classes.

0316. Apprentice Play Writing. Cr. 4.

Topics to be announced in Schedule of Classes.

Individual Authors

0340. English Authors. Cr. 4 (Max. 16).

Chief works of a major or minor author and his influence on literary tradition. Literary virtues, limitations, and historical context. Topics to be announced in Schedule of Classes.

0370. American Authors. Cr. 4 (Max. 16).

Study in depth of the chief works of a major or minor author and his influence on literary tradition. Literary virtues, limitations, and historical context. Topics to be announced in Schedule of Classes.

Major Themes and Techniques in Literature

0380. Major Themes and Techniques in World Literature. Cr. 4 (Max. 16).

Illustration of common origins of literary expression. May be offered with ethnic focus, such as Asian classics. Topics to be announced in Schedule of Classes.

0385. Major Themes and Techniques in English and American Literature. Cr. 4 (Max. 16).

May be offered with ethnic focus, such as Anglo-Irish literature. Topics to be announced in Schedule of Classes.

Language

0420. Historical Development of Language. Cr. 4 (Max. 16).
Historical method applied to the study of the English language. General continuity, limited periods, or topics such as dialect, semantics, phonology, lexicology, grammar. Topics to be announced in Schedule of Classes.

0422. Contemporary Development of Language. Cr. 4 (Max. 16).
Objective analysis of contemporary American English. Syntax, phonology, morphemics, semantics. Structural, transformational, tagmemic or stratificational approaches. Topics to be announced in Schedule of Classes.

Literary Genres

0430. Poetry as a Literary Genre. Cr. 4 (Max. 16).
Poetry in generic and historical contexts, such as Elizabethan sonnets and songs; the imagist movement and early twentieth-century poetry; lyric poetry. Topics to be announced in Schedule of Classes.

0440. Prose Fiction as a Literary Genre. Cr. 4 (Max. 16).
Prose fiction in generic and historical contexts, such as the picaresque novel; novel form in the romantic period; the twentieth-century novella. Topics to be announced in Schedule of Classes.

0450. Intellectual Prose as a Literary Genre. Cr. 4 (Max. 16).
Non-fictional prose in generic and historical contexts, including essays, letters, autobiographies, philosophical texts. Topics to be announced in Schedule of Classes.

0460. Drama as a Literary Genre. Cr. 4 (Max. 16).
Drama in generic and historical contexts, including Restoration drama; Theatre of the Absurd; heroic tragedy; English drama — Medieval to Restoration. Topics to be announced in Schedule of Classes.

0465. Genres of Folklore. Cr. 4 (Max. 16).
Folklore and popular culture in generic and historical contexts, such as, urban folksong movement; local place legends; science fiction. Topics to be announced in Schedule of Classes.

0475. History and Development of Afro-American Literature. Cr. 4 (Max. 8).
Range of Afro-American literature: poetry, drama, fiction, autobiography, and criticism from the beginning to the present. Topics to be announced in Schedule of Classes.

Advanced Techniques of Expository and Imaginative Writing

0511. Poetry Writing Workshop. Cr. 4 (Max. 8).
Prereq: ENG 0311 or consent of instructor. Structure of English poetic forms; nature of rhythm, stanza forms, free verse, melody, imagery, metaphor.

0512. Fiction Writing Workshop. Cr. 4 (Max. 8).
Prereq: ENG 0312 or consent of instructor. Intermediate course in the writing of fiction, conducted on a seminar basis; discussion and criticism of fiction written by students in the course. Reading

assignments made on an individual basis. Frequent individual conferences.

0515. Writing of Expository Prose. Cr. 4 (Max. 8).
Prereq: ENG 0209 or consent of instructor. Writing of articles, reviews, and personal essays. The course demands more fully developed and extended papers than does English 0209. It also encourages the student to develop his own topics for composition.

0516. Writing for Theater, Film and Television (SPH 0585). Cr. 4 (Max. 8).
Prereq: ENG 0316 or consent of instructor. Comparative study in structure of stage, radio, and television plays, motion picture scenarios. Practice in writing either an original script or an essay on some phase of contemporary dramatic form. Actual production of some scripts in experimental theatre and radio studios of Department of Speech.

0517. Technical Report Writing. Cr. 3-4.
Writing of modern technical and factual reports. Emphasis on simplicity, clarity, and directness in communicating facts. Attention to various methods of preparation and presentation consistent with subject matter.

Periods in Literary History

0506. History of Literary Criticism. Cr. 4 (Max. 8).
Development of literary criticism from its origins to the present. Topics to be announced in Schedule of Classes.

0571. Periods of American Literature. Cr. 4 (Max. 16).
Historical approach to the development of American literature; how writers work with the aesthetics and ideas of their age. Topics to be announced in Schedule of Classes.

0581. Periods of English Literature. Cr. 4 (Max. 16).
Historical approach to the development of English literature; how writers work with the aesthetics and ideas of their age. Topics to be announced in Schedule of Classes.

Special Arrangements

0299. Sophomore Honors Colloquium. Cr. 4.
Prereq: ENG 0150 or equiv. Open only to students in Liberal Arts Honors Program. Literary theme, figure, or genre with individualized study. Topics to be announced in Schedule of Classes.

0485. Senior Colloquium. Cr. 4.
Literary problems, themes or movements. Topics to be announced in Schedule of Classes.

0490. Directed Study: Honors Program. Cr. 4-8 (Max. 36).
Prereq: admission to Honors Program by English Honors Program Committee.

0590. Directed Study. Cr. 1-4 (Max. 8).
Undergrad. prereq: 3.0 h.p.a.; written proposal submitted to chairman in quarter preceding proposed study, accompanied by supporting statement from instructor; consent of chairman. Grad. prereq: consent of adviser and graduate officer. Advanced work for superior students whose program cannot be adequately met by scheduled classes. Course requires substantial written work.

Studies and Seminars

Senior standing is prerequisite to all 0600 English courses except English 0610.

0605. Studies in Criticism. Cr. 4 (Max. 8).

Close reading of a few major critics, criticism of a literary period, or development of a critical issue, problem, or school. Topics to be announced in Schedule of Classes.

0610. Advanced Creative Writing. Cr. 4 (Max. 8).

Prereq: pronounced ability established by presentation of manuscripts to instructor. Writing in any of the creative forms. Work by students presented in seminar meetings; individual conferences with instructor.

0621. Introduction to Old English. Cr. 4.

The fundamentals of language and grammar and the literary analysis of Old English texts.

0622. Old English Literature. Cr. 4 (Max. 8).

Prereq: ENG 0621 or consent of instructor. Selected readings. Topics to be announced in Schedule of Classes.

0623. Studies in Modern English. Cr. 4.

Advanced structural theories and analyses.

0628. Studies in Folklore (ANT 0608). Cr. 4 (Max. 8).

Prereq: ENG 0228 or 0360 or 0465 or ANT 0210 or consent of instructor. Use of folklore in literature; fieldwork; analysis of collected oral literature; study of separate genres of oral literature and analysis of parallel texts. Topics to be announced in Schedule of Classes.

0630. Studies in Comparative Literature and Literary Techniques. Cr. 4.

The application of techniques such as structural design, point of view, variation of style, to the solution of a selected literary problem. Topics to be announced in Schedule of Classes.

0635. Studies in Chaucer. Cr. 4 (Max. 8).

Intensive study, including the language structure, and background. "The Canterbury Tales" or "Troilus and Criseyde" and the minor works. Topics to be announced in Schedule of Classes.

0640. Studies in Shakespeare. Cr. 4.

One or more plays examined closely as to text, source, background, interpretation. Topics to be announced in Schedule of Classes.

0642. Studies in Renaissance Writers. Cr. 4 (Max. 8).

Elizabethan-Jacobean dramatists, such as Marlowe and Jonson; or sixteenth-century poets, such as Sidney and Spenser; or Tudor prose writers and their successors, such as More, Puttenham, Nashe, and Lyly. Topics to be announced in Schedule of Classes.

0645. Studies in Seventeenth Century Writers. Cr. 4 (Max. 8).

Milton the subject once a year. Other subjects such as Donne and metaphysical tradition, Jonson and rise of neoclassicism, Bacon and prose of the period, offered from time to time. Topics to be announced in Schedule of Classes.

0650. Studies in Restoration and Eighteenth Century Literature. Cr. 4 (Max. 8).

One or two important figures, a genre, or an area in the history

of ideas. Will include such offerings as Pope and Swift; James Thomson and the Cult of Sensibility; Johnson and his circle; Restoration and eighteenth century drama. Topics to be announced in Schedule of Classes.

0655. Studies in Romantic Writers. Cr. 4 (Max. 8).

One or two writers, such as Blake, Wordsworth, Coleridge, Shelley, Keats, Byron; their relationship to each other and to the critical, literary, and cultural background of their age. Topics to be announced in Schedule of Classes.

0660. Studies in Victorian Writers. Cr. 4 (Max. 8).

Selected studies in novelists, Scott to Hardy; poets, Tennyson to Yeats; or expository prose writers, Carlyle to Pater. Topics to be announced in Schedule of Classes.

0670. Studies in American Literature to 1830. Cr. 4 (Max. 8).

One or two selected writers, themes or movements of the period. Franklin, Cooper, Puritanism. Topics to be announced in Schedule of Classes.

0672. Studies in American Literature, 1830-1865. Cr. 4 (Max. 8).

One or two selected writers, themes or movements of the period. Thoreau, Melville, Hawthorne, Whitman, the Transcendentalists. Topics to be announced in Schedule of Classes.

0674. Studies in American Literature, 1865-1914. Cr. 4 (Max. 8).

One or two selected writers, themes or movements of the period. Dickinson, Twain, James, the local colorists. Topics to be announced in Schedule of Classes.

0676. Studies in American Literature Since 1914. Cr. 4 (Max. 8).

One or two selected writers, themes or movements of the period. Frost, Hemingway, Faulkner, the lost generation. Topics to be announced in Schedule of Classes.

0680. Studies in Twentieth Century English Literature. Cr. 4 (Max. 8).

Offered at least once a year as "James Joyce." Topics to be announced in Schedule of Classes.

0700. Omnibus. Cr. 4 (Max. 12).

Prereq: ENG 0701 and consent of instructor. Specific themes or subjects in English, American or comparative literature. Topics to be announced in Schedule of Classes.

0701. Bibliography and Methods for English Majors. Cr. 4.

Required for 0700 level English seminars. Variety of individual projects on library reference tools. Techniques of scholarly writing, descriptive bibliography and documentation. Topics to be announced in Schedule of Classes.

0702. Textual Studies. Cr. 4.

Prereq: ENG 0701. Application of the methods of analytical and descriptive bibliography to problems in literature, including editing.

†0705. Literary Criticism. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Analysis of critical texts and ideas in specific writers and periods. Required of M.A. candidates in Comparative Literature when offered as "Literary Theory and the Comparative Study of Literature." Topics to be announced in Schedule of Classes.

0711. Topics in British Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. British literature from specific perspectives such as generic, historical, or thematic. Topics to be announced in Schedule of Classes.

0718. Topics in British and American Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Generic, historical or thematic perspectives. Topics to be announced in Schedule of Classes.

0721. Seminar in Old English Poetry. Cr. 4.

Prereq: ENG 0621 and 0701. Selected poems. Topics to be announced in Schedule of Classes.

0723. Modern English Linguistics. Cr. 4.

Prereq: ENG 0701. Problems in application of linguistic theory to modern English. Conflicting phonemic analysis and grammatical descriptions, dialect geography, linguistic and aesthetic theory. Topics to be announced in Schedule of Classes.

0728. Seminar in Folklore. Cr. 4.

Prereq: ENG 0228 or 0360 or 0465 or 0628; and 0701, or consent of instructor. Folklore theory and techniques applied to the study of oral and written literature. Topics to be announced in Schedule of Classes.

‡0735. Middle English Language and Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. First quarter devoted to period c. 1150 - c. 1450. Second quarter devoted to a special area, such as Arthurian legend, fourteenth century alliterative revival, problems of Chaucer criticism. Topics to be announced in Schedule of Classes.

‡0740. Shakespeare. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Problems in current scholarship and criticism. Topics to be announced in Schedule of Classes.

‡0742. Early Renaissance. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. English writers of the sixteenth century in relation to Renaissance development in Italy and France. Topics to be announced in Schedule of Classes.

‡0745. Seventeenth Century Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. English writers, chiefly of the period 1598-1660. Topics to be announced in Schedule of Classes.

‡0751. Eighteenth Century Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Special studies, with emphasis on the history of ideas. Topics to be announced in Schedule of Classes.

‡0755. Late Eighteenth and Early Nineteenth Century Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. The Romantic period, including foreign backgrounds and parallels. Topics to be announced in Schedule of Classes.

‡0760. Victorian Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Poetry, non-fictional prose, drama. Topics to be announced in Schedule of Classes.

‡0770. Early American Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. From the beginnings through Emerson. Usually a concentration on a few writers. Topics to be announced in Schedule of Classes.

‡0772. Later American Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. From Emerson to the present. Usually a concentration on a few writers. Topics to be announced in Schedule of Classes.

‡0774. Topics in American Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Specific subjects in American literature such as oriental influences, American literary humor, naturalism or the Gothic. Topics to be announced in Schedule of Classes.

‡0780. Twentieth Century Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Problems in American or British literature. Topics to be announced in Schedule of Classes.

0787. (TED 7851) Teaching English in Community College. Cr. 4 or 8 (8 required).

Problems in community college teaching of literature, composition, and developmental reading.

0788. (TED 7852) Internship and Seminar in Community College Teaching. Cr. 8.

Prereq: consent of adviser. Offered for S and U grades only. Supervised internship in area community college and seminar in related problems.

0790. Directed Study. Cr. 1-12 (Max. 12).

Prereq: consent of adviser and graduate officer. Advanced work for superior English majors whose program of study cannot be adequately met by scheduled classes.

0793. Workshop. Cr. 4.

Prereq: ENG 0701 and consent of instructor. Combination independent directed study and seminar instruction on topics within a restricted area of interest. Topics to be announced in Schedule of Classes.

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

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

Institute Courses

0050. Institute in English as a Foreign Language. Cr. 0.

Prereq: academic qualifications for an American college or university, or professional qualifications for entry into professional work. Intensive English language training for speakers of other languages.

0060. Developmental English. Cr. 0.

Prereq: consent of adviser; coreq: one credit course. Open only to Project 350 students. Pre-freshmen writing skills.

0600. English Institute: Specially Funded Institute on Literature and Language. Cr. 4 or 8.

May be elected without credit or for post-degree or graduate credit. Prereq: bachelor's degree with a concentration in English. Open to teachers of English and related subjects.

0602. English Institute for Teachers of Language and Literature. Cr. 4 (Max. 16).

Prereq: bachelor's degree with concentration in English. No graduate credit in English. For prospective and in-service teachers. Topics to be announced in Schedule of Classes.

FAMILY AND CONSUMER RESOURCES

Office: 160 Old Main

Chairman: Esther D. Callard

Academic Services Officer: Sally D. Heberlein

Professor

Esther D. Callard, Ph.D.

Associate Professors

Mary Jane B. Bostick, M.Ed., Manetta Heidman, M.S. (Emeritus), Marqueta C. Huyck, M.S., L. Margaret Johnson, Ph.D. (Emeritus), Luella M. Lutz, M.Ed., Aline U. Orten, Ph.D.

Assistant Professors

Jeanne A. Allen, M.A., Phyllis A. Ashinger, M.A., F. Joyce Douglas, M.S., D. June Grossbart, R.N., M.A., Marilyn N. Matekunas, Ph.D., Leora A. Shelef, Sc.D., Phyllis K. Sprague, M.S. (Emeritus), Mary Jane Van Meter, M.A., Therese Warburton, M.F.A. (Emeritus)

Instructor

Barbara L. McCornack, M.A.

Cooperating Faculty from the Merrill-Palmer Institute

James H. Boyce, M.A., Dorothy Haupt, Ed.D., Clark E. Moustakas, Ed.D., Douglas Pearson, Ph.D., Cereta E. Perry, Ph.D., Hyman Rodman, Ph.D., Marjorie D. Sanger, Ed.D., Raymond H. Starr, Ph.D., Robert Whitehurst, Ph.D.

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 primary focus of the curricula in family and consumer resources is the human being, his development and his relation to his near environment, his food, clothing, shelter. The family is a focal point because of its contemporary functions as a supportive institution in human development. Each curriculum is designed, however, for the professional person, man or woman, who works in areas formerly the province of the home, but now centered in business, industry, and government service. Specifically, the department prepares persons to engage in hospital and commercial dietetics or research in

foods and nutrition; textile research, fashion design, or merchandising; housing and interior design; consumer education and related communication arts; and human development and family welfare fields.

Facilities

An Infant Development Laboratory is available for observation of and interaction with infants and their mothers. A nursery school is conducted as a participation and observation laboratory for experience with children two to five years of age.

Students interested in the area of human development may elect courses at Merrill-Palmer Institute in their junior or senior year and in graduate programs. The Institute is utilized by students in this department who are specializing in human development and relations, and in nutrition.

BACHELOR OF ARTS WITH A MAJOR IN FAMILY AND CONSUMER RESOURCES

Liberal Arts group requirements for this degree are established by the College (see p. 190).

BACHELOR OF SCIENCE IN FAMILY AND CONSUMER RESOURCES

Group requirements for this degree correspond with Liberal Arts group requirements (see p. 190), with two exceptions: (1) there is no foreign language requirement; (2) thirty-six credits in natural science are required.

Major Requirements — To meet requirements for either of the above degrees, a student must complete at least thirty credits in one of the special curricula, plus at least twelve credits in departmental courses outside the area of specialization.

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.

Students who wish to follow what was formerly called a "General Home Economics" curriculum should see the academic services officer.

Non-majors may elect up to twenty-three credits in family and consumer resources. The following introductory courses are recommended: FAC 0100, 0171, 0180, 0203, 0221, 0260, 0375.

NUMBERING SYSTEM DESIGNATIONS FOR CURRICULAR AREAS

The **first** and **second** digits of all courses conform to the University course number system.

The **third** digit (as 0541) indicates subject matter as follows:

- 0 courses applicable to all curricula
- 1 courses in the foods area
- 2 courses in the nutrition area
- 3 courses in the institution administration area
- 4 courses in the textile and fashion merchandising area
- 5 courses in the apparel design area
- 6 courses in the housing and interiors area
- 7 courses in the consumer affairs area
- 8 courses in the human development and relationships area
- 9 seminars, independent studies, and workshops offered under each curriculum

Courses with a third digit of "0" or "9" may be recommended or required in any of the special curricula described below.

A **fourth** digit of "0" may indicate a course that is not recommended for majors. Check course description.

SPECIAL CURRICULA (UNDERGRADUATE)

Curricula in Areas of Clothing

These curricula provide the student with a broad background in the area of clothing, textiles, and fashion merchandising. Consideration is given to the creative aspects of costume design, historical and sociological influences on fashion, technological advances in textile manufacturing and garment construction, and implications for the clothing consumer and merchandiser. Courses should be elected from the following:

Family and Consumer Resources: courses with a third digit of "4" or "5", plus 0180, 0221, 0375, 0695

Art 0131

Art History 0100

Psychology 0198

Sociology 0201 or Social Science 0191, 0192

Speech 0200

Apparel Design — students who wish to prepare for positions in the fashion or textile design fields should elect additional courses in art and art history to a total of at least twenty-four credits.

Textile Science — students interested in the technical aspects of textiles preparing for employment with garment manufacturers, commercial or government testing laboratories, or college teaching, are required to elect at least three courses in chemistry.

Fashion Merchandising — students whose objective is to enter the merchandising field are required to elect at least twenty credits in the School of Business Administration including the following:

Marketing 0342, 0532, 0549, 0581

Curricula in Area of Consumer Affairs: Consumer Economics, Foods and Business, Journalism

Curricula in the general area of consumer affairs have been designed to give students a liberal education with the opportunity for concentration in particular professional specialties. Each of these specialties is directed toward positions in business, government, or other agencies concerned with consumer interests, information or education. The selection of courses considers socio-economic influences on consumer decision-making, technological advances affecting goods for choice, and their relevance for consumers, manufacturers, retailers, and those concerned with consumer information and protection.

The following courses common to these areas should be elected:

Family and Consumer Resources: courses with a third digit of "0" and "7", plus 0180, 0213, 0221, 0311, 0695

Business Administration: Marketing 0342

Chemistry 0102, 0103, 0104

Economics 0101, 0102, 0103

Humanities: four credits beyond group requirement

Journalism 0215

Psychology 0198

Sociology 0201

Speech 0200, plus four additional credits

Each of these professional specialties has specific courses to recommend in addition to the above.

Consumer Economics — for students who wish to concentrate their professional preparation in the area of consumer interests. It prepares them to work with government agencies, consumer marketing programs, and consumer oriented businesses. It offers scientific and professional materials on consumer protection, economics, and education.

In addition to the above, courses should be elected from the following:

Family and Consumer Resources 0513, 0541, 0543, 0548, 0561, 0572, 0592, 0611

English: four credits beyond group requirement

Journalism 0308

Psychology 0558 or 0567

Foods and Business — prepares students interested in home service with utilities or developmental work with food, household equipment companies or food marketing organizations. Additional courses should be elected from the following:

Family and Consumer Resources 0513, 0616

Biology 0103, 0220

English: four credits beyond group requirement

Journalism — prepares students interested in careers in radio-TV, printed media, public relations, fashion industries, utilities, food and equipment companies and similar businesses or fields. Advanced major courses can be concentrated in a particular area to meet individual interests. Experience through part-time employment in this field is encouraged. Additional courses should be elected from the following:

Family and Consumer Resources 0513 or 0541, 0543 or 0561 or 0611, 0548, 0572, 0592

Business Administration: Marketing 0532, 0533, 0549
English: twelve credits beyond group requirement
Journalism 0308, 0360

Curricula in Area of Dietetics, Food Science, and Nutrition

Hospital Dietetics — upon completion of this curriculum and a post-graduate approved dietetic internship, the student is eligible for membership in the American Dietetic Association. Most hospitals now require their dietitians to be registered members of the American Dietetic Association. For registration, an individual must pass a comprehensive examination in addition to the above. The following requirements may be modified to conform to changes made in the academic requirements of the American Dietetic Association:

Family and Consumer Resources 0100, 0213, 0221, 0231, 0282, 0311, 0331, 0375, 0502, 0513, 0523, 0524, 0606, 0616, 0635, 0695
Biology 0103, 0187, 0220
Business Administration: Management 0362
Chemistry 0107, 0108, 0110, 0224, 0226, 0228, 0560
Economics 0101
Psychology 0198, 0308
Sociology 0201

Elect one of the following specializations:

General:

Family and Consumer Resources 0525, 0592
Anthropology 0210
Computer Science 0201

Management:

Family and Consumer Resources 0592
Business Administration: FBE 0529; Management 0160, 0570
Computer Science 0201

Community Nutrition:

Family and Consumer Resources 0525, 0592
Allied Health Programs 0350
Anthropology 0210

Commercial Dietetics — this curriculum is for those students who wish to prepare for administrative positions in restaurants, industrial food service, college and residence or school food services. Eligible graduates may apply for admission to administrative internships approved by the American Dietetic Association. Apprenticeship training programs are also offered by the National Restaurant Association and the School Lunch-on Department of the Detroit Public Schools.

Students in this curriculum should follow the hospital dietetics curriculum except for the following: Biology 0187 and Family and Consumer Resources 0523, 0524, 0606 are not required. Chemistry 0102, 0103, 0104 may be elected instead of the sequence listed. In addition to the above, students should elect: Business Administration: Accounting 0310 and all courses listed in the management specialization.

Food Science — for those interested in the application of modern science to the manufacturing and distribution of foods. The curriculum prepares students for work in food industry, in government, in research, or in education.

Courses should be elected from the following:

Family and Consumer Resources 0203, 0213, 0221, 0375, 0490, 0513, 0523, 0524, 0606, 0611, 0616
Biology 0103, 0141, 0161, 0220, 0523, 0525
Chemistry 0107, 0108, 0110, 0224, 0226, 0228, 0410, 0411, 0560

Nutrition — this curriculum is for those interested in the more scientific approaches to nutrition. The courses planned for this curriculum meet the academic requirements of the American Dietetic Association. Students wishing to teach nutrition, work in public health nutrition or do research should follow this curriculum. Most of these positions require further graduate study.

Students in this curriculum should follow the hospital dietetics curriculum except for the following: business administration and institution administration courses are not required unless the student wishes to apply for an approved dietetic internship. Biology 0140, 0507 and Family and Consumer Resources 0529 are required. In addition, all courses listed in the community nutrition specialization should be elected.

Curriculum in Area of Housing and Interiors

This curriculum prepares students to work with architects, builders, interior designers, governmental agencies, manufacturers of home furnishings and equipment, home planning bureaus of department stores, and other organizations concerned with the creative and functional aspects of housing; or to establish their own interior design studios. Membership available after first year of study in the W.S.U. Student Affiliate Chapter of the American Society of Interior Designers. Appropriate secondary school preparation might include study in geometry, environmental studies, behavioral sciences and design. Courses should be elected from the following:

Family and Consumer Resources: courses with a third digit of "6", plus 0241, 0375, 0443, 0587, 0695
Art 0101, 0102, 0131, 0132, 0232
Art History 0100 or 0112
Business Administration: Marketing 0342, 0532
Civil Engineering 0501
Economics 0102
Philosophy 0370
Psychology 0198
Sociology 0201 or Social Science 0191, 0192
Speech 0200
Urban Planning 0502

Curriculum in Area of Human Development and Relationships

This curriculum prepares students whose primary educational objective is understanding human behavior as influenced by the physiology and nurture of the individual and by conditions and relationships within the family and culture. This curriculum will prepare the graduate for employment or for graduate study in fields which serve family welfare or investigate human development and relationships. Resident credit is given for at least one quarter of study at the Merrill-Palmer Institute, preferably during the last of the junior year. Courses should be elected from the following:

Family and Consumer Resources: courses with a third digit of "8", plus 0221, 0275 or 0375, 0606, 0695

Anthropology 0210, 0520

Biology 0103, 0187

Psychology 0198, 0301, 0311, 0330

Social Science 0191, 0192 or Sociology 0201, 0460

Study at the Merrill-Palmer Institute

Systematic concentration of sixteen or more credits in a cognate field, i.e., biology, clinical psychology, education, nutrition, pre-social work, pre-urban planning

Two-Year Child Care Program—students may take a planned sequence of ninety credits which will prepare them for work in day-care centers and child-care facilities.

MASTER OF ARTS OR MASTER OF SCIENCE IN FAMILY AND CONSUMER RESOURCES

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-five credits in course work plus an essay.

The Master of Science in Family and Consumer Resources degree requires that one-half of the student's course work be in laboratory courses.

Students may concentrate their graduate work in an area of specialization. A cooperative program with the Merrill-Palmer Institute is available in the human development and relationship specialization. A final oral examination is required.

Admission

Requirements depend upon area of specialization:

Consumer Affairs — Undergraduate preparation must include a minimum of fifteen credits in consumer affairs, with supporting courses in the social sciences (especially economics) and psychology. Particular business administration courses will be reviewed for acceptance as allied to the area in lieu of some of the social science courses.

Foods and Nutrition — Undergraduate preparation must include a minimum of twenty credits in the subject areas of food preparation, meal planning, nutrition or institution administration with supporting courses in bacteriology, chemistry, economics, physiology, psychology, and sociology.

Housing and Interiors — Undergraduate preparation must include a minimum of fifteen credits in housing and interior design or environmental design with supporting courses in allied fields such as art, architectural drawing, urban planning, and other closely related areas.

Human Development and Relationships — Undergraduate preparation should include approximately thirty 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.

Textiles, Apparel Design and Merchandising — Undergraduate preparation must include a minimum of twenty credits in the subject matter areas of clothing, clothing selection, and

textiles, with supporting courses in art (including basic design), science and social science.

Comprehensive Major in Family and Consumer Resources — Undergraduate preparation must include a minimum of twenty-two credits in family and consumer resources or home economics and closely related areas.

The Graduate Record Examination is required if the student's admission is probationary.

Candidacy must be established by the time eighteen credits have been earned. The committee on graduate studies may require satisfactory achievement in a comprehensive examination before candidacy is recommended.

ASSISTANTSHIPS

Assistantships are available each year to applicants having the highest scholarship and showing the greatest potential capacity for professional achievement. Each assistantship presumes an average of twenty hours per week of service to the instructional program in the department. Letters of application should be directed to the Chairman of the Department.

COURSES OF INSTRUCTION¹ (FAC)

0100. Current Trends in Family and Consumer Resources. Cr. 1. Required of family and consumer resources majors during first quarter as freshmen or transfer students. Family and consumer resources as a profession; courses of study, career opportunities.

0103. The Consumer and Ecology. Cr. 3. Perspectives on the consumer ecosystem and environmental quality; concern for consumer priorities, social discipline, and natural and technological resources.

0130. Problems in Dietary and Food Service Supervision I. Cr. 2. Elementary course in dietary institutional administration. Techniques of supervision of personnel in the service of food and the planning, organizing and coordinating of food procurement and service.

0131. Problems in Dietary and Food Service Supervision II. Cr. 2. Problems and techniques of the management of equipment and food supplies.

0132. Dietary Food Study and Menu Planning. (1,2). Cr. 2. Methods, standards and principles in the preparation of foods in quantity. Menu planning for various types of food service units.

0133. Food Service Purchasing and Records. Cr. 2. Food purchasing and record keeping in relation to the development of specifications and control of inventories.

0134. Food Service Equipment: Use and Layout. Cr. 2. Equipment characteristics and evaluation; the effect of equipment on work flow and simplification; use of equipment in food production.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0135. Dietary Personnel Supervision. Cr. 2.

Personnel problems pertinent to efficient food service operations; supervisors' responsibilities and teaching techniques of motivating employees.

0136. Supervised Work Experience in Institution Administration. Cr. 2 (Max. 4).

Correlates classroom theory with practical work experience in the following areas of food service: orientation, administration and food production, personnel and patient food service, and supervision.

0154. Clothing I: Selection and Construction. Cr. 4.

Basic techniques in the construction of garments; the application of elements and principles of design to the selection of clothing.

0171. Consumer Information: Clothing and Accessories. Cr. 4.

No credit after FAC 0347. Not recommended for clothing majors. Recent developments in clothing and accessory markets. Economic, aesthetic, and functional considerations in selection of fabrics, clothing, and accessories.

0180. Individual Development through Family Interaction. Cr. 4.

Bio-social theory of human development. Focus on critical periods in growth cycle; impact of parent-child relations on behavior; mutuality of needs among family members.

0182. Supervised Observation of Child Development: Birth to Age Five. (2,4). Cr. 4.

Prereq: FAC 0180; satisfactory health record, TB test within last six months. No credit after Family and Consumer Resources 0282. Observation of infants, toddlers and preschool children in homes and in group settings. Comparison of observed behavior to normative growth and development data. Implications for adult-child relationships and child care programming.

0185. Child Development Principles in Home Care. Cr. 4.

Prereq: FAC 0180. Needs of the young child; child care methods in problem areas. Role of the child care aide.

0186. Survey of Early Child Care. (2,4). Cr. 4.

Focus on infants and young children from the urban area. Field observations in homes and in community child care programs.

0203. Man, Food and Environment. Cr. 3.

Socio-economic origins of ethnic food pattern and habits and their relationship to satisfaction and nutrition. Technological, chemical and ecological considerations. Food challenges of the future.

0210. Survey of Foods and Meal Management. (2,6). Cr. 4.

Not open to students in the foods and nutrition specialization. A cultural approach. Food preparation; nutritional, social and economic aspects. Laboratory experience with food.

0213. Foods I. Cr. 4.

Chemical and physical properties of foods that affect handling and preparation. Preparation of fruits, vegetables, cereals, beverages, milk, cheese, meats, fish, poultry, batters and doughs.

0221. Elements of Nutrition. Cr. 4.

Energy and nutrient needs of all age groups. Personal, family, social, economic food problems.

0223. Principles of Nutrition and Nutrient Metabolism. Cr. 2.

Prereq: CHM 0104. Open only to students in the College of Nursing. Fundamentals of nutrition and food selection. Role of

the nutrients in the maintenance of health and in the prevention of malnutrition at all ages.

0231. Introduction to Food Service Systems Management. (2,3). Cr. 3.

Institutional food service systems; organization and management problems specific to each; trends for the future; field trips to food service institutions.

0241. Textiles I. Cr. 4.

Historical development of fibers; the impact of technological advances on yarn and fabric construction; recognition of fiber properties; finishing and dyeing processes.

0254. Clothing II: Design and Construction. Cr. 4.

Prereq: FAC 0154, 0241. Use of designer patterns and special fabrics in construction of structured and unstructured garments. Pattern alterations and fitting.

0260. Introduction to Housing and Interiors. (3,2). Cr. 4.

Functional, aesthetic, financial, and psychosocial aspects of the home and its furnishings; problems in evaluating floor plans and in selecting and arranging furnishings.

0275. Consumer Problems of Low Income Families. (3,2). Cr. 4.

A coordinated approach to the consumer problems of low income. Comparative buying and product information in areas such as food, clothing, household equipment, credit practices and fraud, family spending, and security as well as consumer protection agencies.

0282. Experiences with the Young Child. (3,4). Cr. 5.

Prereq: FAC 0180, or equiv.; satisfactory health record; TB test within last six months. Growth and development of the child age two to five; methods of care and guidance; student participation in toddler and nursery school laboratory.

0291. Workshop. (2,4). Cr. 2-4 (Max. 12).

Application of theoretical principles to selected areas of family and consumer resources. Topics and prerequisites to be announced in Schedule of Classes.

0311. Management, Cultural, and Historical Aspects of Food. Cr. 4.

Prereq: FAC 0213 or consent of instructor. Social, cultural and historical interrelationships of food and its service. Managerial, economic, psychological, nutritional, and aesthetic implications.

0331. Quantity Food Production. (2,3). Cr. 3.

Prereq. or coreq: FAC 0213. Standards, principles, methods and experiences in producing quality food; menu planning for various types of food service units.

0341. Textiles II. (3,2). Cr. 4.

Prereq: FAC 0241 or consent of instructor. Effect of fiber, yarn, construction, design and finish on wearing quality and appearance of fabrics. Identification, testing. Implications for use and care.

0347. Merchandise Information: Clothing and Accessories. Cr. 4.

Prereq: FAC 0241. No credit after FAC 0171 or 0571. Quality and value in fashion merchandising. Manufacturing processes, government regulations, selling points.

0348. Introduction to Fashion Merchandising. Cr. 4.

Psychological, sociological and economic aspect of fashion; contemporary costume and fashion trends, retail establishments and opportunities in fashion. Field trips.

0360. Determinants of Housing. Cr. 4.

Interplay of forces that shape housing: history, need, social and cultural attitudes and values, economics, technology and aesthetics. Environmental context.

0361. Interior Design: Color, Texture, Light. (2,4). Cr. 4.

Prereq: FAC 0241 and 0260. Aesthetic and functional properties of interior design materials; problems in coordination for specifically defined situations. Studio.

0375. The Consumer and the Market. Cr. 4.

Economics of consumption as related to consumer purchases of goods and services. The consumer viewpoint regarding credit, insurance, money management, advertising, and consumer protection agencies and legislation.

0381. Experiences with the Infant. (3,2). Cr. 4.

Prereq: FAC 0180, satisfactory health record; TB test within last six months. Growth and development of the child from birth to two years of age. Observation of infant-mother interaction. Direct participation in infant care within laboratory setting.

0385. Child Development in the Day Care Setting. (3,4). Cr. 5.

Prereq: FAC 0180, 0186, satisfactory health record, and TB test within last six months. Growth and development of the preschool child in the day care setting. Methods of care and guidance. Student participation in supervised full day care experience.

0389. Day Care Administration. Cr. 4.

Prereq: sophomore standing. Applied principles relating to the operation and management of day care facilities. Technical and financial aspects.

0443. Textile Design. Cr. 4.

Prereq: FAC 0241. Historic and contemporary techniques used in the structural enrichment of fabrics. Application of design principles; exploratory techniques.

0445. Socio-Psychological Aspects of Clothing. Cr. 4.

Influence of cultural standards, individual roles, technological advances, and economic changes on the development and meaning of dress.

0463. Interior Design: Basic Skills. Cr. 4.

Prereq: ART 0132; FAC 0361. Skill development required in interior designing: perspective, sketching, quick color rendering, space planning.

0464. Design of the Residence. Cr. 4.

Prereq: FAC 0463, CE 0501. Case study of functional and aesthetic considerations in the dwelling, emphasizing human needs and values, behavioral implications. Studio development of problem solutions. Graphic and verbal presentations.

0465. Multiple Dwellings. (1,8). Cr. 4.

Prereq: FAC 0464. Case study of interior and exterior systems in housing developments: privacy, security, traffic, materials; community services and amenities; site development.

0466. Interior Design: Advanced Problems. (1,4). Cr. 4.

Prereq: FAC 0464. Verbal and graphic communication skills development associated with professional practice in contract and residential design; presentation techniques, client relations.

0475. The Consumer and His Money. Cr. 4.

Economic principles and problems in relation to personal and family incomes, expenditure and responsibilities.

0490. Directed Study. Cr. 2-4 (Max. 12).

Prereq: consent of adviser and instructor.

0491. Workshop. (2,4). Cr. 2-4 (Max. 12).

Application of theoretical principles to selected areas of family and consumer resources. Topics and prerequisites to be announced in Schedule of Classes.

0502. Communication Techniques for Family and Consumer Resources. (4,1). Cr. 4-5.

Prereq: junior or senior standing or consent of instructor. The communication process, including professionally oriented written materials; design, layout, preparation for printing. Techniques of lecture-demonstration. Preparation of materials for radio-TV.

0503. Management Techniques and Equipment Evaluation. Cr. 4.

Prereq: consent of instructor. Principles of management and work simplification as they relate to the human and material resources of the home as well as the selection of equipment for work in the home.

0513. Foods II. (2,6). Cr. 4.

Prereq: FAC 0213 or consent of instructor. Chemical and physical properties of foods that affect their handling and preparation.

0520. Fundamental and Practical Nutrition. Cr. 3.

For non-nutrition majors only. Basic principles of nutrition. Practical consideration of specific nutritional problems at the individual, national and world level.

0523. Nutrition and Metabolism I. Cr. 4.

Prereq: FAC 0221, general and organic chemistry and BIO 0187 and 0220; a course in biochemistry or consent of instructor. Credit only with satisfactory completion of Family and Consumer Resources 0524. Nutrition, metabolism, nutritional needs, and problems of current interest.

0524. Nutrition and Metabolism II. Cr. 4.

Prereq: FAC 0523. Credit only after satisfactory completion of Family and Consumer Resources 0523. Nutrition, metabolism, nutritional needs and problems of current interest.

0525. Nutrition in Disease. Cr. 4.

Prereq: FAC 0524 or consent of instructor. Dietary modifications for therapy in metabolic and pathological disorders and other abnormal conditions, with adjustment for cultural patterns.

0529. Child Nutrition. Cr. 4.

Prereq: consent of instructor or adviser. Chemical growth and nutritional requirements from infancy through adolescence.

0533. Institution Equipment and Furnishings. Cr. 4.

Prereq. or coreq: FAC 0331. Selection and arrangement for food service departments.

0534. Quantity Food Purchasing and Cost Control. Cr. 4.

Prereq: consent of instructor. Principles and methods.

0540. New Developments and Trends in Textiles. Cr. 3.

Prereq: FAC 0241 or consent of instructor. Special problems based on individual interests.

0541. Practicum in Textile Testing. Cr. 4.

Prereq: FAC 0341 or consent of instructor. Orientation to physic testing procedures related to textiles. Individual research.

0543. History of Textiles and Costume. Cr. 4.

Pre-historic to nineteenth century historic textiles and costumes as they reflect sociological, political and economic concepts of a given period.

0547. Visual Display in Merchandising. (2,4). Cr. 4.

Prereq: ART 0101 or 0131. Visual merchandising concepts and trends; relationship of design elements and principles to the tools and structures used in display. Creative experimentation in various media.

0548. Fashion in Merchandising. Cr. 3.

Fashions in fabrics. Outstanding designers. Fashion markets, coordination, training, promotion. Publications and other sources of information. Lectures by specialists.

0549. Economics of Merchandising. Cr. 3.

Prereq: eight credits in marketing including MKT 0342. Application of business theory to fashion merchandising; design and implementation of merchandise plan.

0552. Fashion Design: Tailoring. (3,2). Cr. 4.

Prereq: FAC 0254 or consent of instructor. Specialized techniques applied to custom tailored coats, suits, and accessories including an evaluation of various tailoring methods.

0554. Advanced Problems in Apparel Design and Construction. (3,2). Cr. 4 (Max. 8).

Prereq: FAC 0552, 0558 or 0559 or consent of instructor. New techniques; emphasis on fiber and fabric technology; individual problems.

0558. Fashion Design: Flat Pattern Designing. Cr. 4.

Prereq: FAC 0254 or consent of instructor. Principles; construction and use of a sloper for execution of original designs.

0559. Fashion Design: Draping. Cr. 4.

Prereq: FAC 0254 or consent of instructor. Development and modification of dress form to duplicate student's figure; creation of original garments by draping on the form.

0561. The History of Furniture. Cr. 4.

Patterns of historical development and change in furniture and interiors from man's earliest expressions to the twentieth century, as they reflect the changing cultural framework of civilization.

0562. Twentieth Century Interiors: Art Nouveau Through Contemporary. Cr. 4.

Prereq: FAC 0561 for housing and interiors majors. Relationship of furnishings and accessories to recent developments in materials and technology; changing concepts of architectural relevance. Contemporary market sources. Local field trips.

0565. Housing Technology. Cr. 4.

Prereq: FAC 0360 and consent of instructor. Synthetic climate and construction systems as they relate to human physiology and design of housing; thermal balance, illumination, acoustical controls, basic structural types.

0571. Consumer Problems in Clothing Selection. Cr. 4.

No credit after FAC 0171 and 0347. Economic problems in budgeting, selection and care of clothing. Legislation for consumer protection.

0572. Food Products Selection. Cr. 4.

Prereq: FAC 0213 or equiv. Economics of marketing and con-

sumer problems. Standards, legislation related to consumers and marketing.

0582. Developmental Assessment of the Young Child. (2,4). Cr. 4.

Prereq: FAC 0282 or equiv.; satisfactory health record, TB test within last six months. Research orientation; assessment of the young child, ages three to five, through systematic observation and testing within the nursery school laboratory; independent investigation in the field.

0584. Experiences with School Age Children. (3,3). Cr. 4.

Prereq: FAC 0282 or consent of instructor. Students work directly with selected school age children. Laboratory experiences related to child development principles presented in lecture.

0585. Child Development Principles Applied to Preschool Programming. (3,3). Cr. 4.

Prereq: introductory course in child development or experience in preschool program; satisfactory health record; TB test within last six months. The individual child in a group setting, utilization of space and materials to foster growth. Case studies of children; one morning per week in preschool setting.

0586. (TED 5319) Seminar in Adult Relationships in the Preschool. Cr. 3.

Prereq: senior or graduate standing or consent of instructor. Psychosocial approach to the adults in the young child's life; staff, parents and community.

0587. Experiences with the Family. (2,4). Cr. 4.

Prereq: introductory courses in psychology and sociology and FAC 0180 for undergraduates. Observation of selected families to determine how families from various social classes and at different stages in the family cycle meet the needs of their members. Lectures relating observations to current theories of family function.

0592. Supervised Field Experience. Cr. 4.

Prereq: consent of instructor. Supervised field experience designed to correlate classroom theory with practical work.

0606. Research Problems in Family and Consumer Resources. (3,2). Cr. 4.

Prereq: consent of instructor. Research orientation: acquaintance with published data, principles of design, methods of collecting data, and basic statistical analysis.

0611. History of Foods. (3,2). Cr. 4.

Prereq: senior or graduate standing; consent of instructor or adviser. Origins of food and food patterns of historical significance and their relationship to the art, culture and economics of their time.

0616. Food Standards and Quality Control. (3,2). Cr. 4.

Prereq: FAC 0203, a course in organic chemistry or consent of instructor. No credit after Family and Consumer Resources 0716. Theoretical and practical interpretations of government grades on finished food products; food testing.

0621. Interpretation of Nutrition. Cr. 3.

Prereq: FAC 0525. Principles of learning as related to nutrition. Methods of presenting nutrition to various groups.

0635. Institution Organization and Personnel Management. Cr. 4.

Prereq: consent of instructor. Organization of institution food departments; trends in administration; personnel management; professional ethics; administrative problems.

0663. Environmental Design: Human Aspects. (2,4). Cr. 4.

Prereq: 16 credits in behavioral sciences and consent of instructor. Exploration of experimental and theoretical work focusing on the influence of the physical environment on human behavior; group and institutional setting. Individual research problems, verbal and graphic, applied to sample urban behavior settings.

0664. Urban Family Housing. Cr. 4.

Prereq: consent of instructor. Effects of different urban housing situations on family behavior patterns; urban communities; federal housing legislation and local implementation.

0680. Child Development: Principles and Implications. Cr. 3.

Not recommended for students in human development curriculum. Basic concepts and their application to professional areas dealing with children. Sources of growth and development data.

0681. Child Development I. Cr. 3.

Prereq: introductory courses in sociology and psychology and FAC 0381, or written consent of adviser. Prenatal and infancy. Theories and research in the areas of motor, perceptual, cognitive, language, and social-emotional development. Implications for child nurture and guidance within the family and group settings.

0682. Child Development II. Cr. 3.

Prereq: FAC 0282 or written consent of adviser. Early childhood.

0683. Child Development III. Cr. 3.

Prereq: FAC 0584, or written consent of adviser. Middle childhood and adolescence.

***0686. Studies in Child Rearing. Cr. 3.**

Prereq: consent of instructor. Child rearing and factors influencing parental practices. Recent work dealing with characteristics and sources of contemporary child rearing practices. Implications for teachers, social workers, other professional people.

0687. Contemporary Issues in the American Family. Cr. 3.

Prereq: senior or graduate status. Institutional view of nuclear families; current forces and directions of change; effects on family interaction and patterns of child-rearing.

0688. New Perspectives in Human Development. Cr. 2 (Max. 6).

Prereq: consent of instructor. Topics to be announced in Schedule of Classes.

0693. Study Tour. (1,6). Cr. 3 (Max. 6).

Prereq: consent of instructor. Group tour to major market sources; observation and analysis of products and marketing procedures. Offered for selected departmental areas. Topics to be announced in Schedule of Classes.

0695. Seminar. Cr. 3 (Max. 9).

Prereq: consent of instructor. Offered for each area of specialization. Topics to be announced in Schedule of Classes.

0716. Food Standards and Quality Control. Cr. 4.

Prereq: FAC 0221, 0513, 0572, or consent of instructor. No credit after Family and Consumer Resources 0616. Theoretical and practical interpretation of government grades on finished food products. Methods of food testing.

0743. Textile Design. Cr. 4.

Prereq: consent of instructor. Historic and contemporary techniques used in the structural enrichment of fabrics. Application of design principles; exploratory techniques.

0745. Socio-Psychological Aspects of Clothing. Cr. 4.

No credit after FAC 0445. Influence of cultural standards, individual roles, technological advances and economic changes on the development and meaning of dress. Research paper.

0754. Advanced Problems in Apparel Design and Construction. (3,2). Cr. 4 (Max. 8).

Prereq: FAC 0552 and 0558 or 0559 or consent of instructor. New techniques with emphasis on fiber and fabric technology; individual problems.

0760. Determinants of Housing. Cr. 4.

Prereq: FAC 0606. Interplay of forces that shape housing: history, need, social and cultural attitudes and values, economics, technology and aesthetics; environmental context; individual research responsibility.

0765. Multiple Dwellings. (1,8). Cr. 4.

Prereq: FAC 0464. Case study of interior and exterior systems in housing developments: privacy, security, traffic, materials; community services and amenities; site development; coordination responsibility. Studio.

0766. Interior Design: Advanced Problems. (1,4). Cr. 4.

No credit after FAC 0491. Prereq: FAC 0464. Developing verbal and graphic communication skills associated with professional practice in contract and residential interior design; forms of client-designer contracts, pricing and estimates.

0773. Experimental Equipment. Cr. 4.

Prereq: consent of instructor. Research problems in the evaluation of design, engineering, and efficiency of home appliances. Recent technological development. (Formerly FAC 0573.)

0775. Consumer Problems. Cr. 4.

Prereq: consent of instructor. Economics of consumption as related to consumer purchases of goods and services. Research problem required.

0778. Practicum in Consumer Resources. Cr. 2-6.

Independent problems, research or professional work in the consumer, foods, or equipment areas.

0781. Practicum: Infancy. (2,4). Cr. 4.

Prereq: satisfactory health record; FAC 0681 or equiv. Orientation to research methods in infant development. Experience in infant testing, measurement, and assessment.

0782. Practicum: Young Child. (2,4). Cr. 4 (Max. 12).

Prereq: consent of instructor; satisfactory health record, TB test within last six months. Four credits only applicable toward master's degree. Supervised experiences with children ages two to five years with emphasis on special problems in child development and guidance.

***0785. Professional Role of the Preschool Teacher. (4,3). Cr. 5.**

Prereq: written consent of instructor and adviser. The teacher of preschool children; pressure for curriculum revision; supervision of college students who use the nursery school; instruction of college students.

***0786. Individuality and the Group Process. Cr. 3 (9 required).**

Must be taken three successive quarters. No credit after Family and Consumer Resources 0795. Development of the individual in

*Offered by the Merrill-Palmer Institute.

terms of self-awareness, insight; development of the group in terms of open and authentic communication and effective interpersonal relationships.

***0787. Dynamics of Family Interaction. Cr. 3.**

Prereq: consent of instructor. Current theories and concepts of family interaction with focus on family communication patterns, emerging family roles and alternative patterns of family adjustment to internal and external stress.

0788. Conceptual Frameworks for Studying the Family. Cr. 3.

No credit after FAC 0695. Prereq: SOC 0550 or FAC 0587 or consent of instructor. Current developments in family theory; evaluation of research conducted from various theoretical orientations; application to an understanding of family issues and problems.

0790. Directed Study. Cr. 2-4 (Max. 12).

Prereq: consent of adviser, instructor, and graduate officer. Offered for each area of specialization.

0791. Advanced Workshop. (2,6). Cr. 2-4 (Max. 12).

Application of theoretical principles to selected areas of family and consumer resources. Topics and prerequisites to be announced in Schedule of Classes.

0795. Seminar. Cr. 3-4 (Max. 10).

Prereq: consent of instructor. Offered for each area of specialization. Topics to be announced in Schedule of Classes.

0796. Research. Cr. 3-9 (Max. 9).

Prereq: consent of adviser.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

***0880. Survey and Evaluation of Research on the Family. Cr. 3.**

Prereq: consent of instructor. Review and analysis of selected research studies of the family. Focus on the research findings, the research methods used, and the kind of further research that may be needed.

***0881. Behavior and Development of Infants. Cr. 3.**

Prereq: consent of instructor. Examines theory and research relevant to cognitive-perceptual and socio-emotional development during the first two years of life. Particular emphasis on acquiring an appreciation of the need for and the possible direction of research in the area of human infancy.

***0882. Seminar in Human Development: Cognition. Cr. 3-4.**

Prereq: consent of instructor. Theoretical and empirical material in the field of human development. Focus on theories and facts in the fields of cognitive development. Examination of the logic of the various methodologies employed with children, and analysis of the levels of data obtained, specific problems involved in doing research with children.

***0884. Personal Growth and Psychological Counseling. (2,3). Cr. 3.**

Prereq: consent of instructor. An exploration of the self as a therapeutic relationship with adults. Concepts, principles, and approaches in the interpersonal process.

***0885. The Urban Community and Families. Cr. 3.**

Prereq: consent of instructor. Community life in urban centers in relation to the life of families. Emphasis on trends in American

cities, community change and ways of bringing it about, and ways in which families and communities affect each other.

***0886. Research Readings in Child Development. Cr. 3.**

Prereq: consent of instructor. Designed to review current findings in a variety of areas, such as intellectual and cognitive development, parent-child relations, effects of infant care, preschool group experiences, genetic development, and development of moral character.

***0887. Psychotherapy with Children. (2,3). Cr. 3 (9 required).**

Prereq: consent of instructor. Must be taken three quarters in succession. Philosophical and value orientation to the nature of man and the relationship between man and man. In addition to classroom experiences, students observe and participate in therapy interviews with "normal" and "disturbed" children, make school visits, and have supervisory conferences.

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

Prereq: consent of adviser.

*Offered by the Merrill-Palmer Institute.

GEOGRAPHY

Office: 225 State Hall

Chairman: Fred E. Dohrs

Acting Chairman: Robert D. Swartz

Professors

Fred E. Dohrs, Ph.D., Robert J. Goodman, Ph.D., Bert Hudgins, Ph.D. (Emeritus), Robert Sinclair, Ph.D.

Associate Professor

Robert D. Swartz, Ph.D.

Assistant Professors

Margaret E. Crawford, Ph.D., Judith S. Humphrey, M.A., Jack A. Licate, M.A., Bryan Thompson, Ph.D., Robert C. Wright, Ph.D.

DEGREE PROGRAMS

Bachelor of Arts — with a major in geography

Master of Arts — with a major in geography

Master of Arts in Teaching College Geography

Geography seeks to describe and interpret the character of the earth with emphasis on particular elements of its makeup, and attempts to integrate these elements within particular areas. As an integral part of social science, geography deals with patterns of distribution of various types of features, resources, and conditions to which people have reacted differently according to their varied cultural backgrounds and stages of economic and political development. Stress is placed on methods and techniques for regional analysis so that the study of area problems in different parts of the world constitutes a discipline in itself. Knowledge about contemporary man in his habitat is not only essential for the background of every educated person, but contributes to a better understanding of many other fields.

BACHELOR OF ARTS

Major Requirements — Students may major in geography by completing forty-five credits in the department. The sequence of courses, unless an exception is granted by the department, should include 0120, 0300, 0301, 0302, 0303, 0340, and 0390.

Recommended Cognate Courses — Courses in geology are recommended as part of the physical science requirement for graduation.

Honors Program for Majors — Superior students, that is, students with an honor point average of 3.3 or better, may be admitted to the honors program in geography. The honors major student is permitted to follow a course of study independent of the standard major requirements, most of the work in geography to be done free of prescribed courses as directed study by the election of Geography 0490.

Combined Curriculum for Secondary Teaching with a major in geography is recommended for students who plan to teach geography or other social studies in the secondary schools. The major requirements as stated above must be completed. Information regarding this curriculum is on p. 196.

MASTER OF ARTS

Plan A — Thirty-six credits plus a thesis.

Plan B — Forty-four credits plus an essay.

The program prepares the student with a broad foundation in geography which will enable him or her to pursue doctoral work or professional employment. The curriculum is flexible and every attempt is made to tailor individual courses of study to the goals of the student.

Admission — Requirements are the same as those for entry into the Graduate Division of the College of Liberal Arts: a student must have an honor point of 2.6 or above for the upper division of undergraduate course work. Prerequisite for admission to the Department of Geography is the completion of at least eighteen credits in geography including work in physical geography, map study, and cartography. An undergraduate major in geography is desirable but not mandatory. A student may complete prerequisites while earning graduate credit.

Candidacy must be established by the time eighteen credits, including Geography 0700 and 0780, have been earned. An official *Plan of Work* must be filed at that time.

Degree Requirements — All masters students' programs must include Geography 0700, 0780, and 0750 or its equivalent. A final oral examination is required.

Master of Arts in Teaching College Geography

Plan A — Thirty-six credits plus a thesis.

Plan B — Forty-four credits plus an essay.

This program prepares a student for teaching geography in the community college. Emphasis is placed on the acquisition of a broad background in geography and its effective presentation in the classroom.

Admission — Same as for the M.A. in geography listed above.

Candidacy is also the same as for the M.A. in geography listed above.

Course Requirements — Include Geography 0700, 0780, 0750 or its equivalent, 0791, 0792 and 0794. A final oral examination is required.

FELLOWSHIPS AND ASSISTANTSHIPS

The department offers a limited number of assistantships to highly-qualified students. Details and applications may be obtained from the Chairman of the departmental Graduate Study Committee.

COURSES OF INSTRUCTION¹ (GEG)

0110. World Regional Geography. Cr. 5.

Physical and cultural factors underlying regional and national differences in the contemporary world.

0120. Introduction to the Environment. Cr. 5.

Physical and cultural elements of the environment as a basis for human survival.

0130. Economic Geography. Cr. 5.

Locational analysis of man's basic economic activities.

0220. Western Europe. Cr. 4.

0230. Cultural Geography. Cr. 4.

Socio-cultural diversity of mankind; fundamental principles of human geography.

0240. Eastern Asia. Cr. 4.

0245. Southern Asia. Cr. 4.

0250. Africa. Cr. 4.

0263. The United States. Cr. 4.

0270. Latin America. Cr. 4.

0300. Geographic Tools and Techniques. Cr. 5.

Prereq: consent of instructor. Map interpretation and analysis.

0301. Geographic Tools and Techniques. Cr. 5.

Prereq: consent of instructor. Basic cartographic techniques.

0302. Geographic Tools and Techniques. Cr. 4.

Prereq: consent of instructor. Quantitative methods.

0303. Pro-Seminar. Cr. 3.

Prereq: consent of instructor.

0313. Introductory Urban Geography. Cr. 4.

Geographic study of the city; its form and function with historical and cross-cultural emphasis.

0340. Physical Geography. Cr. 4.

Prereq: GEG 0120 or equiv., or consent of instructor. Analysis of physical landscape and processes.

0390. Directed Study. Cr. 2-4 (Max. 9).

Prereq: 18 credits in geography and consent of adviser. Readings and research.

0400. Philosophy and History of Geography. Cr. 3.

Prereq: GEG 0302 or equiv., or consent of instructor. Major themes and developments in geography.

0490. Directed Study: Honors Program. Cr. 3-16 (Max. 24).

Prereq: consent of chairman.

0500. The World Today. Cr. 4.

Prereq: one course in geography or consent of instructor. Critical areas in current world scene; geographical factors underlying internal and external problems and conflicts.

0525. Eastern Europe. Cr. 4.

Prereq: one course in geography or consent of instructor.

0532. Soviet Union. Cr. 4.

Prereq: one course in geography or consent of instructor.

0541. Middle East. Cr. 4.

Prereq: one course in geography or consent of instructor.

0567. Michigan. Cr. 4.

Prereq: consent of instructor.

0568. Regions of Detroit. Cr. 4.

Prereq: consent of instructor. Delineation and analysis of cultural regions in Detroit.

0573. Problems of Latin America. Cr. 4.

Prereq: consent of instructor. Problems of urban Latin America, settlement trends, land tenure, and other selected topics.

0589. Regional Studies. Cr. 3-4 (Max. 12).

Prereq: specified by instructor. Advanced study of selected regions. Topics to be announced in Schedule of Classes.

0611. Politics and Urban Geography. Cr. 4.

Prereq: one course in geography or consent of instructor. Spatial implications of urban politics.

0612. Rural Landscape. Cr. 4.

Prereq: one course in geography or consent of instructor. Analysis of rural patterns and functions.

0613. Advanced Urban Geography (U P 0612). Cr. 4.

Prereq: GEG 0313 or consent of instructor. Urban patterns and functions.

0614. The Metropolitan Region (U P 0632). Cr. 4.

Prereq: one course in geography or consent of instructor. Metropolitan and megalopolitan structure; emphasis on processes.

0615. Internal Structure of the City (U P 0632). Cr. 4.

Prereq: GEG 0313 or 0613 or consent of instructor. Analysis of the internal make-up of the city.

0616. Comparative Urban Systems. Cr. 4.

Prereq: GEG 0313 or 0613 or consent of instructor. Cities of the Communist Bloc, Asia, Africa, Latin America.

0617. Physical Bases of Urban Ecology (U P 0532). Cr. 4.

Prereq: GEG 0120 or consent of instructor. Physical environment of a city: geology, climate, pollution, water resources, soils, and vegetation in an urban context.

0618. Selected Urban Problems (U P 0542). Cr. 4.

Prereq: GEG 0313 or consent of instructor. Identification and evaluation of urban problems. Topics to be announced in Schedule of Classes.

0619. Directed Study in Urban Geography. Cr. 2-4 (Max. 12).

Prereq: GEG 0613. Research in cooperation with Geography graduate faculty member or members.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0621. Advanced Economic Geography. Cr. 4.

Prereq: GEG 0130 or equiv., and ECO 0102 or equiv., or consent of instructor. Spatial analysis of selected economic activities: manufacturing, agriculture, tertiary and quaternary services, urban land use.

0622. Conservation of Natural Resources. Cr. 4.

Prereq: one course in geography or consent of instructor. Resource use and conservation practices in the United States.

0624. Industrial Geography. Cr. 4.

Prereq: GEG 0130 or equiv., or consent of instructor. Location of industry, geography of production factors. Raw materials, labor, products, markets.

0626. Problems of Resource Management and Development (U P 0685). Cr. 4.

Prereq: one course in geography or consent of instructor. Selected problems in resource management and resource development.

0628. Marketing Geography. Cr. 4.

Prereq: GEG 0130 or equiv., or consent of instructor. Analysis of marketing problems. Retail location and retail patterns within urban areas.

0629. Geography of Economic Development. Cr. 4.

Prereq: GEG 0130 or consent of instructor. Economic patterns and factors underlying problems and potentials in less developed world regions and nations, and less developed areas in economically advanced nations.

0630. Advanced Cultural Geography. Cr. 4-8.

Prereq: GEG 0230 or consent of instructor. Detailed analysis of the elements of culture and their importance in cultural ecology, the formation of cultural landscapes, and the differentiation of culture areas and regions.

0631. Political Geography and Geopolitics. Cr. 4.

Prereq: one course in geography or consent of instructor. Geographic influences on history, development of nations.

0632. Historical Geography of the United States. Cr. 4.

Prereq: HIS 0201 or equiv., or consent of instructor. Factors in settlement and development.

0635. The Geography of Ethnic Groups in the United States. Cr. 4.

Prereq: one course in geography or consent of instructor. Urban and regional patterns of ethnic groups.

0640. Advanced Physical Geography. Cr. 4.

Prereq: GEG 0340 or consent of instructor. Landforms of the earth, the processes which act to shape the surface. Regional examples are cited.

0641. Climatology. Cr. 4.

Prereq: GEG 0340 or equiv., or consent of instructor. Systematic and regional study of the atmosphere with emphasis on description, genetic explanation, and physical processes underlying distributional patterns of climates.

0651. Land Utilization Problems. Cr. 4.

Prereq: geography major or consent of instructor. Methods of classifying land utilization; use and misuse of land.

0652. Travel-Field Studies. Cr. 2-6 (undergrad. max. 6; grad. max. 4).

Prereq: one course in geography or consent of instructor. Observation and interpretation of data in the field. Class sessions preparatory to travel. Written reports.

0663. Advanced Cartography. Cr. 4.

Prereq: consent of instructor. Selected problems; landform representation, color, special topics.

0664. Techniques in Visualization. (1.3). Cr. 4.

Prereq: 20 credits in geography and consent of instructor. Compilation and photography of maps, charts, and statistical data to produce animated cartography, film strips, and overhead transparencies.

0665. Quantitative Techniques in Geographic Analysis. Cr. 4.

Prereq: GEG 0302 or equiv. Application of quantitative techniques to geography.

0670. Theoretical Geography. Cr. 4.

Prereq: GEG 0302 or equiv. Advanced methods of measurement, description, manipulation; the scientific method; review of literature on and philosophy of theoretical geography.

0671. Perception of the Geographic Environment. Cr. 4.

Prereq: GEG 0302 or equiv., or consent of instructor. Man's response and adaptation to natural and man-made environments, and his use and conception of geographic space.

0689. Systematic Studies. Cr. 3-4 (Max. 12).

Prereq: specified by instructor. Advanced study of selected systematic topics. Topics to be announced in Schedule of Classes.

0700. Seminar in Geographic Research and Bibliography. Cr. 3.

Prereq: graduate standing. Introduction to advanced professional work in geography, familiarizing students with geographic traditions, methodologies, field and library research techniques, and the presentation of research materials.

0750. Field Geography. Cr. 4-5 (9 required).

Prereq: consent of instructor. Field techniques and training. Analysis of problems; preparation of reports.

0780. Seminar in Geography. Cr. 3.

Prereq: major in geography or consent of instructor.

0781. Seminar in Urban Geography. Cr. 3.

Prereq: GEG 0613 or consent of instructor. Urban research methods; theoretical developments in urban geography; current urban problems.

0785. Seminar in Systematic Geography. Cr. 3 (Max. 9).

Prereq: consent of instructor.

0786. Seminar in Regional Geography. Cr. 3 (Max. 9).

Prereq: consent of instructor.

0790. Directed Study. Cr. 3-4 (Max. 12).

Prereq: consent of adviser and graduate officer. Readings and research.

0791. (TED 7851) Problems and Methods of Teaching Geography in the Community College I. Cr. 3-4.

Prereq: TED 5851, 6853 or equiv., or consent of instructor.

0792. (TED 7852) Student Teaching of Geography on the Community College Level. Cr. 3-4.

Prereq. or coreq: GEG 0791 and consent of adviser. Offered for S and U grades only.

0794. (TED 7853) Problems and Methods of Teaching Geography in the Community College II. Cr. 3-4.

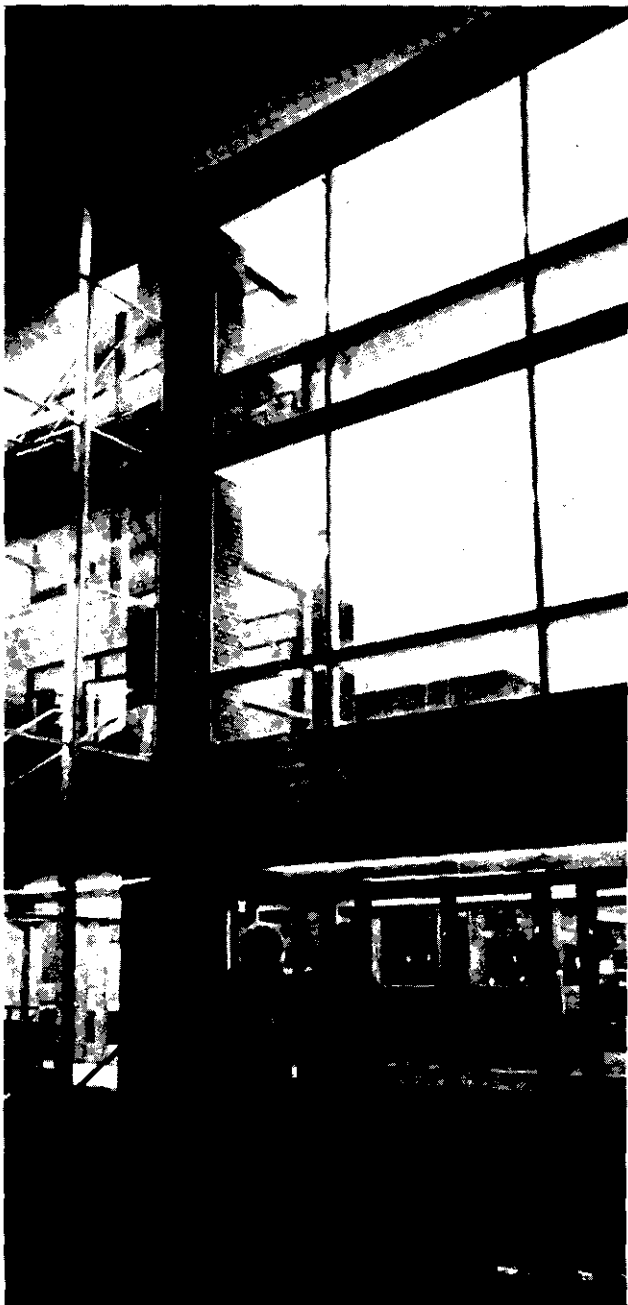
Prereq: GEG 0791. Continuation of Geography 0791.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

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

Prereq: consent of adviser.



GEOLOGY

Office: 201 Old Main

Chairman: F. William Cambray

Professors

Egbert G. Driscoll, Jr., Ph.D., Hugo Mandelbaum, Dr.rer.nat. (Emeritus), Andrew J. Mozola, Ph.D., Willard H. Parsons, Ph.D., John T. Sanford, Ph.D. (Emeritus)

Associate Professors

F. William Cambray, Ph.D., Robert B. Furlong, Ph.D., Donald MacLachlan, Ph.D. (Emeritus), Luciano B. Ronca, Ph.D., Richard F. Ward, Ph.D.

Assistant Professor

Osborne B. Nye, Jr., Ph.D.

Adjunct Associate Professor

Robert E. Mosher, Ph.D.

Adjunct Assistant Professor

Jane W. Renaud, M.S.

DEGREE PROGRAMS

Bachelor of Arts — with a major in geology

Bachelor of Science — with a major in geology

Master of Science — with a major in geology

Geology courses consist of studies of the materials of the earth and the processes to which they have been subjected, landscape features and their origins, and the history of the earth as recorded by rocks and fossils.

The courses in geology are planned to serve the needs of four groups of students: (1) those who desire a cultural knowledge of geology as a part of a liberal education; (2) those who need geological information as a cognate subject in other professions; (3) those who wish to major in geology as part of a broad liberal education; and (4) those who plan to become professional geologists. Introductory courses are primarily cultural, but they also provide a foundation in geology for the student who desires to continue an intensive program of study. In addition, a variety of courses in various phases of geology is available to the general student. Intermediate and advanced courses are designed to develop the principles of geology beyond the elementary level and to give a firm technical foundation for advanced study in the various fields of geology.

BACHELOR OF ARTS

Major Requirements—This program is intended for those who wish a cultural major. It is recommended as a back-

ground for secondary school earth science teacher training. Students must complete forty credits beyond Geology 0102. Twenty of the forty credits must be from advanced courses and should include one field course, Geology 0365, or an approved course at another university. At least one college course in each of two of the following fields is required: biology, chemistry and physics. Mathematics 0180 and the Foreign Language Group Requirements are prescribed. This program does not satisfy the requirements for entrance to the Master of Science degree program.

Students wishing an Earth Science Major as background for teaching in the secondary schools are recommended to the curriculum in *Unified Science* (see p. 193 in this catalog). They should take their thirty credit concentration in geology. (These thirty credits include the 0100 level courses.)

BACHELOR OF SCIENCE

Major Requirements—This program is the professional major and the proper preparation for graduate work in geology. Students must complete at least forty credits exclusive of the introductory courses. Twenty of the forty credits should be from advanced courses and must include one field course which may be Geology 0365 or an approved course offered by another university. This program must include a year of college mathematics, a year of chemistry and a year of either physics or biology. The courses in mathematics should include Mathematics 0211, 0212, and either 0213 or a course in statistics or computing. If Geology 0530 is elected for this purpose then it cannot be used for partial fulfillment of the forty credits in geology. The courses in chemistry should include Chemistry 0102 for the student without high school chemistry and then the equivalent of Chemistry 0107 and 0108. The courses in physics should be Physics 0213, 0214, and 0215. Students should contact their adviser concerning the courses in biology. A foreign language is recommended, but not required. Since the different branches of geology call for widely different course patterns, particularly in cognate fields, a student intending to major in geology should consult with a member of the geology staff concerning his program at the earliest possible date.

MASTER OF SCIENCE

Plan A—Thirty-six credits in course work plus a thesis.

The graduate program offers a broad foundation in general geology to provide a background for those students who intend to pursue doctoral work or seek professional employment. Special emphasis is placed on petroleum geology, sedimentation, paleontology, igneous or metamorphic petrology, ground water geology and geochemistry.

Department research programs involving areas in Michigan, Massachusetts, Montana, Wyoming and Ontario (Canada) offer opportunities for thesis subjects.

Admission requires an undergraduate major in geology, or a strong background in geology supported by courses in related science fields, with an honor point average of at least 3.0 in the major. The applicant must file three personal letters or be interviewed by the Chairman of the Committee on Graduate Study.

Prerequisites should include mineralogy, paleontology, petrology, sedimentation and structural geology, two quarters of calculus, a year of chemistry and either a year of physics or biology. Deficiencies in prerequisites may be made up concurrently with graduate work. Graduate student programs may be modified by the Geology Department to conform with the needs of individual students. A reading knowledge of French, German, or Russian is desirable.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements—The student must have at least one summer of field work or two of the department's short summer field courses. This may be a summer field course at an established university camp, or commercial work, if approved by the Committee on Graduate Study, and it may be a part of the thesis requirement. Two regular 0700 level courses must be taken, excluding 0790, 0791, 0792, 0793, 0794, 0795, 0796, and 0798.

A written comprehensive examination on general geology is required after eighteen graduate credits have been earned. It will be given by the graduate staff in November and May of each academic year. A final oral examination on the thesis is also required.

A geology major may not earn more than eight graduate credits in directed study courses (0790, 0791, 0792, 0793, 0794), or more than eight graduate credits in research courses (0795, 0796).

ASSISTANTSHIPS

The teaching of laboratory sections is considered an important part of the master's program and will be required of all candidates. Teaching assistantships are available to highly qualified students. Applications should be directed in writing to the Chairman of the Committee on Graduate Study.

COURSES OF INSTRUCTION¹ (GEL)

0100. Geology and the Environment. Cr. 3.

Primarily for non-science majors. Geological aspects of man's use of his environment including geological hazards; water; waste disposal; occurrence, use, and depletion of natural resources.

0101. (PHS 0193) Physical Science: Principles of Geology I. (4,3). Cr. 5.

Introduction to rocks and minerals; igneous and volcanic geology; work of running water, glaciers and ground water; geologic time; geophysics and structure of the earth's crust and interior; oceanography. One day field trip.

0102. Principles of Geology II. Cr. 4.

Prereq: GEL 0101 or PHS 0193 with a grade of C or better. May be elected concurrently with Geology 0104. Sedimentary rocks and fossils; stratigraphy and structure of rocks; mountain building; sequence of events during history of the earth. A one-day field trip.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0104. Principles of Geology II: Laboratory. Cr. 1.

Prereq: GEL 0101 with grade of C or better; prereq. or coreq: GEL 0102. Exercises on principles discussed in Geology 0102.

0110. Gems and Gem Materials. Cr. 3.

No credit after Geology 0213; no science group requirement credit; no geology major credit. General properties, methods of cutting, occurrence, determination of various minerals and synthetic substances used as gems.

0125. Short Course in Geology. Cr. 1 (Max. 2).

Three and a half week offering commencing at the beginning of a quarter. Topics such as: Earthquakes, Exploration of the Moon and Planets, Water Below the Ground, Volcanoes, Continental Drift and Energy Resources will be announced in the Schedule of Classes.

0126. Short Course in Geology. Cr. 1 (Max. 2).

Three and a half week course commencing the fourth week of a quarter. Topics such as listed under Geology 0125 will be announced in the Schedule of Classes. It will be possible to register for this course during the normal registration periods.

0127. Short Course in Geology. Cr. 1 (Max. 2).

Three and a half week course commencing at the seventh week of a quarter. Topics such as listed under Geology 0125 will be announced in the Schedule of Classes. It will be possible to register for this course during the normal registration periods.

0197. Honors Geology. Cr. 4.

Open only to students in the Liberal Arts Honors Program. Principles of the subject and their application in specific situations. Topics to be announced in the Scheduled of Classes.

0212. Mineralogy I: Crystallography. Cr. 4.

Prereq: one course in high school or college chemistry. External morphology and internal arrangement of minerals.

0213. Mineralogy II: Descriptive. (2,4). Cr. 4.

Prereq: one course in high school or college chemistry. Identification of minerals by means of physical characteristics. Properties and occurrences of major mineral groups.

0220. Geomorphology. (3,3). Cr. 4.

Prereq: GEL 0102. Principles underlying development of land forms by geologic agents.

0228. Glacial Geology. (3,2). Cr. 4.

Introduction to glacial geology: types of glaciers, movement and landscape features resulting from glacial erosion and deposition. Glacial features of the Great Lakes Region. (Formerly Geology 0528.)

0237. Meteorology. Cr. 4.

Atmospheric conditions, weather maps, forecasting. Instruments and records.

0316. Petrology. (3,3). Cr. 4.

Prereq: GEL 0102 and 0213. Origin, occurrence, alterations, classification, methods for determination of important rocks based on megascopic characteristics.

0330. Structural Geology. (3,3). Cr. 4.

Prereq: GEL 0102, and high school trigonometry or equiv. Description and interpretation of features which result from the origin or deformation of rock masses.

0340. Principles of Sedimentology and Stratigraphy. Cr. 4.

Prereq: GEL 0102 or consent of instructor. Processes which produce sediments, environments of deposition, changes after deposition. Relationship between tectonics and sedimentation. Origin of sedimentary strata. Facies and correlations.

0345. Invertebrate Paleontology. (3,3). Cr. 4.

Prereq: GEL 0102 or consent of instructor. Paleontology of invertebrates; evolutionary relationships between taxa and geological applications.

0346. Paleocology. (3,3). Cr. 4.

Prereq: GEL 0102 or consent of instructor. Theory and techniques for the interpretation of paleoenvironments, interpretation of fossil communities.

0355. Techniques in Sedimentation and Stratigraphy. (2,5). Cr. 4.

Prereq: GEL 0102 and 0340 or consent of instructor. Techniques of physical and chemical analysis applied to recent sediments and sedimentary rocks.

0365. Field Course. Cr. 1-10 (Max. 16).

Prereq: consent of instructor. Field trip from several days to six weeks to classic areas (western New York, Ontario, northern Michigan, southern Appalachians, or Rocky Mountains), during Spring, Summer or early Fall. Discussion before or after trip.

0390. Directed Study in Geology. Cr. 2-6 (Max. 10).

Prereq: consent of instructor and adviser. Primarily for honors students.

0496. Research in Geology. Cr. 3-4 (Max. 8).

Prereq: consent of instructor and adviser. Primarily for honors students. Independent laboratory and field work.

0497. Seminar in Geology. Cr. 2-4 (Max. 8).

Prereq: consent of instructor.

0501. Earth Science for Teachers: General Geology. (3,3 or 9). Cr. 4 or 6.

Prereq: for science teachers; at least one course each in physics and chemistry. Not open to geology majors. Introduction to geology on an advanced level. Earth materials, earth processes, the fossil record, earth history, economic geology; emphasis on geologic features in Michigan.

0502. Earth Science for Teachers: Geophysics and Oceanography. Cr. 3-4.

Prereq: for science teachers; a minor in biology, chemistry or physics. Not open to geology majors. Shape, interior and physical properties of the earth, application of geophysics. Ocean basins, circulation of ocean waters, marine sedimentation.

0504. Earth Science for Teachers: Meteorology. Cr. 4.

Prereq: previous course in physics or chemistry. Introduction to meteorology covering atmospheric circulations, weather maps and forecasting, and weather instruments and charts.

0505. Earth Science for Teachers: Planetology and Space Science. Cr. 4.

Prereq: one course in chemistry or physics. Introduction to the geology of the planets; recent space programs of the U.S.A. and U.S.S.R.

0506. Earth Science for Teachers: Minerals and Rocks. (2,4). Cr. 4.

Prereq: one course in chemistry or physics. For science teachers.

No credit after Geology 0212. Not open to geology majors; graduate credit for education majors. Identification and origin of the important economic and rock-forming minerals. Textures, composition, classification and identification of the common rocks. Emphasis on minerals and rocks of Michigan.

0512. Principles and Methods of Geochemistry. (4,3). Cr. 5.

Prereq: GEL 0316, 0340 and two quarters of college chemistry or consent of instructor. Introduction to the chemistry of the earth and to the analytical techniques used by geochemists. Chemistry of common earth materials, reactions within these materials.

0513. Geology of Non-Metallic Resources: Economic Geology. (3,3). Cr. 4.

Prereq: GEL 0316 and 0330. Distribution, origin, occurrence, use of non-metallic mineral resources, mineral fuels, water resources. Identification of non-metallic minerals of economic importance.

0514. Geology of Metallic Resources: Economic Geology. (3,3). Cr. 4.

Prereq: GEL 0316 and 0330. Distribution, occurrence, origin, use of metallic mineral resources. Identification of metallic ore minerals.

0516. Instrumental Analysis in Geology. (3,3). Cr. 4.

Prereq: GEL 0512. Theory of electromagnetic radiation and the application of this radiation to instrumental methods of analysis in geology. Preparation and analysis of earth materials utilizing basic techniques including ultraviolet, visible, infrared, atomic absorption, optical emission spectroscopy.

0530. Statistical and Computer Methods in Geology. (4,3-6). Cr. 4-8.

Prereq: consent of instructor. Open only to geology majors. Principles of statistics, probability, and computer programming; applications to the geological sciences; sampling procedures, populations, confidence limits, regressions, correlations and time series.

0535. Introduction to Geophysics. Cr. 4.

Prereq: consent of instructor. Gravitational field and isostasy; magnetic field and paleomagnetism; seismology; internal structure of the earth; absolute age determinations; concepts of orbital mechanics.

0536. Exploration Geophysics. Cr. 4.

Prereq: consent of instructor. Exploration methods for ores, oil and gas. Gravitational methods. Magnetic methods. Electrical methods. Radioactivity methods. Seismic methods. Geophysical well logging. Principles of remote sensing.

0547. Micropaleontology. (3,3). Cr. 4.

Prereq: GEL 0346. Morphology, taxonomy, and stratigraphic occurrence of invertebrate groups represented by micro-fossils. Techniques and modern approaches to the study of these economically important taxa.

0550. Geological Development of North America. (3,3). Cr. 4.

Prereq: GEL 0330, 0340, 0345 or consent of instructor. Tectonic setting, stratigraphy and sedimentological history of North America from a regional viewpoint.

0551. Stratigraphic Paleontology. (3,3). Cr. 4.

Prereq: GEL 0346 or consent of instructor. Type sections, guide fossils, important fauna, sedimentational history of North America.

0555. Petroleum Geology. (3,3). Cr. 4.

Prereq: GEL 0330 and 0355. Theories regarding origin, migration,

accumulation of petroleum and natural gas. Practical problems in exploration and production. Types of oil and gas fields in the United States.

0612. Optical Mineralogy. (2,4). Cr. 4.

Prereq: GEL 0316 or consent of instructor. Behavior of crystals in polarized light. Use of polarizing or petrographic microscope and its accessories. Determination of rock-forming minerals.

0614. X-ray Techniques in Geology. (3,3). Cr. 4.

Prereq: GEL 0512. The theory and techniques of x-ray analysis as applied to geologic materials. Lectures concentrate on x-ray diffraction and x-ray fluorescence theory. Laboratory consists of practical applications in solving geologic problems.

0616. Volcanology. Cr. 4.

Prereq: GEL 0316. Structure and petrology of active and recent volcanoes; classification of volcanic rocks; active volcanic belts of the world.

0620. Groundwater Geology. Cr. 4.

Prereq: GEL 0220, 0340. Principles of occurrence and movement; water-bearing characteristics of sediments and rocks and influence of structure; reservoir transmission and water course problems; effects of land occupancy.

0716. Igneous Petrology. Cr. 4.

Prereq: GEL 0316 and 0612. Composition, classification, origin of igneous rocks. Structures, textures, mineral composition of rocks in thin section using the polarizing microscope.

0717. Advanced Sedimentology. Cr. 4.

Prereq: GEL 0316. Recent developments in sedimentology.

0718. Metamorphic Petrology. (3,3). Cr. 4.

Prereq: GEL 0316 and 0612. Composition, classification and origin of metamorphic rocks. Laboratory involves petrographic studies of textures, structures, and mineral composition of metamorphic rocks in thin section.

0730. Tectonics. Cr. 4.

Prereq: GEL 0330. Advanced structural geology; relation of structure and sedimentation; major structural features of the world; origin of mountain belts.

0736. Oceanography. Cr. 4.

Prereq: consent of instructor. Physical, chemical and biological oceanography; emphasis upon the processes and interactions of the sea floor and the benthos. (Formerly Geology 0636.)

0740. Descriptive Sedimentology. Cr. 4.

Prereq: GEL 0316 and 0340, or consent of instructor. Description and classification of sedimentary rocks. Sediments as concepts and physical objects. Use of stereoscopic microscope in study of surface and subsurface samples. Commercial applications.

0765. Methods of Field Research. Cr. 1-10 (Max. 10).

Prereq: consent of adviser. Field methods in surface and subsurface geology. Usually conducted in field.

0790. Directed Study in Geology. Cr. 2-8 (Max. 8).

Prereq: consent of instructor, adviser, and graduate officer.

0791. Directed Study in Paleontology. (0,4-16). Cr. 2-8.

Prereq: consent of instructor, advisor, and graduate officer.

0792. Directed Study in Petrology. (0,4-16). Cr. 2-8.
Prereq: consent of instructor, adviser, and graduate officer.

0793. Directed Study in Pleistocene Geology. (0,4-16). Cr. 2-8.
Prereq: consent of instructor, adviser, and graduate officer.

0794. Directed Study in Geochemistry. (0,4-16). Cr. 2-8.
Prereq: consent of instructor, adviser, and graduate officer.

**0795. Research in Stratigraphy and Sedimentation. (0,4-16).
Cr. 3-4 (Max. 8).**
Prereq: consent of instructor and adviser. Independent work in laboratory or field.

0796. Research in Geology. Cr. 3-4 (Max. 8).
Prereq: consent of instructor and adviser. Independent work in laboratory or field.

0797. Seminar in Geology. Cr. 2-4 (Max. 8).
Prereq: consent of instructor. Selected fields such as tectonics, volcanology, oceanography, paleontology, groundwater geology. Topics to be announced in Schedule of Classes.

0798. Colloquium in Geology. Cr. 1 (Max. 3).
Prereq: graduate standing in geology. Offered for S and U grades only. Weekly programs by visiting lecturers, graduate staff and graduate students.

**0899. Master's Thesis Research and Direction. Cr. 2-12
(12 required).**
Prereq: consent of adviser.



GREEK AND LATIN LANGUAGES AND LITERATURES

Office: 431 Speech and Foreign Languages Building

Chairman: Jacob E. Nyenhuis

Professors

Jacob E. Nyenhuis, Ph.D., Ladislav I. Szymanski, Ph.D.
(Visiting)

Associate Professors

Ernest J. Ament, Ph.D., Eula G. Cutt, M.A. (Visiting),
Richard W. Minadeo, Ph.D.

Assistant Professors

Harry B. Evans, Jr., Ph.D., Joel B. Itzkowitz, Ph.D., Ruth
W. Todd, Ph.D., Nancy Wiggers, Ph.D.

DEGREE PROGRAMS

*Bachelor of Arts — with a major in classics,
Greek, or Latin*

*Bachelor of Arts — with a major in classical
civilization*

Master of Arts — with a major in classics or Latin

*Graduate minor or cognate credit may be earned in
classics in English translation and in Greek.*

The primary function of the department is the presentation of the Greco-Roman origins of European civilization through courses in both language and literature. These courses expose the student to ancient classics which for more than two millennia have played a central role in the education of Western man. Courses offered by the department are designed to meet the needs not only of students desiring to fulfill a foreign language requirement but also of those who wish to increase their knowledge and appreciation of their cultural heritage and of those who desire to participate in the continuation of this tradition through a career in teaching.

American School of Classical Studies at Athens

The department is a member of the American School of Classical Studies at Athens with the rights and benefits that accrue therefrom. For students of the department these benefits include free tuition when attending that School in Athens and eligibility for the scholarships, fellowships and grants which the School offers. For further information consult with the department advisers.

Modern Greek Studies Scholarship

The Ministry of Culture and Science of the Kingdom of Greece annually makes available one scholarship to a student of Modern Greek language and literature. The purpose of the scholarship is to enable the student to acquire a first-hand knowledge of Greece, its people and their way of life and to establish personal contacts with cultural and scientific personalities in Greece. The annual summer program includes tours of archeological sights in Greece, visits to some of the Aegean Islands and attendance at such cultural events as the Epidaurous Festival and the Athens Festival. For further information consult with the department advisers.

BACHELOR OF ARTS

A student who wishes to major or minor in the department should plan his program with the departmental major adviser as soon as possible after entering the University. Each program is arranged individually to combine the most varied advantages consistent with the student's interests and purposes, such as the desire to combine majors and minors for teacher certification, to acquire language skills needed for technical work in other areas of study, to enrich professional background, or to broaden general cultural development.

Combined Curriculum for Secondary Teaching—Students who are preparing to teach Latin in the secondary schools and who wish to obtain a B.A. degree with a major in Latin must complete the major as outlined below and the requirements for this curriculum set by the College of Education. For further information on this curriculum, see "Secondary Teaching" in the Undergraduate Curricula section of College of Liberal Arts.

Recommended Cognate Courses—All majors in the fields covered by the department are strongly urged to take as much work as possible in the literatures of other languages, including English, as well as Art History 0516 (Classical Art and Archaeology), History 0533 (Greece) and 0534 (Rome), and Philosophy 0370 (Aesthetics). Philosophy 0302 (Greek Philosophy), 0541 (Plato) and 0542 (Aristotle) are also recommended as cognates for Greek and classics majors.

Major Requirements in Classics—A major in classics consists of thirty-six credits of concentration in either Greek or Latin, exclusive of Greek or Latin 0101, 0102, and 0103, plus twenty credits of concentration in the other language, and Classics 0619 and 0620. For recommended cognates, see above.

Major Requirements in Greek—A major in Greek consists of forty-eight credits, exclusive of Greek 0101, 0102, and 0103, and including Classics 0619, 0620, and 0621. Potential majors are also encouraged to elect Classics 0200 during the freshman or sophomore year. For recommended cognates, see above.

Major Requirements in Latin—A major in Latin consists of forty-eight credits, exclusive of Latin 0101, 0102, 0103, and including Classics 0619 and 0620.

Potential majors are also encouraged to elect Classics 0200 (Greek Mythology) during the freshman or sophomore year.

Major Requirements in Classical Civilization—The major in classical civilization is administered by this department in cooperation with the Departments of Art and Art History, English, History, Humanities, Philosophy, and Speech. It is designed for those students with interests in the development of the classical tradition in Western culture. It offers broad general education without intensive work in ancient languages to students with graduate aspirations in the humanities or professions such as law or medicine. The breadth of this major also permits choice of a second major or heavier concentration in specific areas included in this one.

Core Requirements:

1. Fulfillment of the Foreign Language Group Requirement in either Greek or Latin.
2. Forty credits distributed as follows: Classics 0200, 0619, 0620, 0621; Art History 0110 (Survey of Art History I); History 0533 (Greece) and 0534 (Rome); Humanities 0526 (Studies in the Arts and Ideas of Western Culture: Hellenic through Early Renaissance); Classics 0300 or Philosophy 0302 (Greek Philosophy) and 0541 (Plato) or 0542 (Aristotle).

Electives—From twelve to twenty-four credits of electives chosen from the following: up to twelve credits in either Greek or Latin beyond 0201; Art History 0515 and 0516 (Classical Art and Archaeology I and II); Classics 0519; History 0535 (Hellenistic Period); Honors 0484 (Plato's *Republic*); Philosophy 0541 or 0542 (depending on which of the two was elected as part of the core requirements) and 0370 (Aesthetics); Speech 0613 (Rhetorical Theory and Practice in Ancient Greece).

The minimum requirement for the major in classical civilization is fifty-two credits and the maximum is sixty-four credits, exclusive of the Foreign Language Group Requirement.

Honors Program Requirements—Qualified majors may apply for participation in the departmental Honors Program. Only the student who has demonstrated superior ability in the classical field and who shows promise of acquiring greater breadth and depth of knowledge through tutorial study will be admitted to the program. As preparation for admission the student is required, during the freshman and sophomore years, to acquire basic knowledge of one of the languages (ideally, of both) and is encouraged to elect Classics 0200 (Greek Mythology.)

Once the Honors candidate has been admitted to the program (normally at the end of the sophomore year) he shall fulfill normal major requirements for the degree. The required courses Classics 0619 and 0620, however, must be elected during the junior year. In the senior year he shall elect a minimum of eight credits in Classics 0490, which will prepare and guide him in the writing of a Senior Honors Essay. Written and oral comprehensive examinations must be successfully completed in the senior year. Eligible students who are interested in the program should consult the departmental honors adviser. The diploma of the successful honors candidate will read "graduation with honors in Classics."

MASTER OF ARTS IN CLASSICS

Plan B — Forty-four credits in course work plus an essay.

Plan C — Forty-eight credits in course work.

Admission — The applicant must present an undergraduate major in Latin, Greek or classics or receive the consent of the graduate adviser for graduate work.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — A minimum of twenty-four credits in the one language and a minimum of sixteen credits in the other plus a maximum of eight credits in cognate or related fields are required. Of courses elected in the major language, a minimum of two must be at the 0700 level, exclusive of essay credits under Plan B. A final examination is required.

MASTER OF ARTS IN LATIN

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-four credits in course work plus an essay.

Plan C — Forty-eight credits in course work.

Admission — The applicant must present an undergraduate major in Latin or receive the consent of the graduate adviser for graduate work.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — Under Plans A or B course work must include at least twenty-eight credits in Latin exclusive of Latin 0799 or 0899, and including eight credits in courses numbered 0700 or higher. A final examination is required.

Under Plan C course work must include at least twenty-eight credits in Latin, including either Latin 0519 or 0520 and at least eight credits in courses numbered 0700 or higher and Classics 0619. A final examination is required.

COURSES OF INSTRUCTION¹

Classics in English Translation (CLA)

0100. Introduction to Greek Tragedy. Cr. 4.

The dramatic and literary qualities of representative plays of Aeschylus, Sophocles and Euripides. The origin and development of Greek tragedy related to the enduring quality and contemporary relevance of these dramas.

0101. Introduction to Ancient Epic. Cr. 4.

Basic themes in the epics of Homer, Apollonius of Rhodes, and Vergil.

0123. Etymology: English Words from Greek and Latin. Cr. 4.

Formation and structure of English words derived from Greek

and Latin roots, including legal, medical and general scientific vocabulary.

0200. Greek Mythology. Cr. 4.

Typical myths related to religion, custom, ethics, philosophy, art, literature.

0300. The Greek Philosophers. Cr. 4.

Origin and development of Greek philosophical thought from the pre-Socratics through the age of Aristotle. Selected authors and works.

0319. Women in Classical Antiquity. Cr. 4.

Development of attitudes toward women from the Bronze Age through the fully developed patriarchal societies of Greece and Rome based on literary, archaeological, and historical evidence.

†0519. Greek and Roman Life. Cr. 4.

Unit studies reconstructing the development and physical, social and moral milieu of Greco-Roman society at various periods.

0590. Directed Study. Cr. 1-4 (Max. 8).

Prereq: undergrad., at least two classics courses and written consent of chairman; grad., written consent of chairman and graduate officer. Directed independent research in depth on a topic or author treated in the regular classics offerings, culminating in a course paper.

†0619. Classical Origins of Western Thought: Greece. Cr. 4.

Literary studies spanning ancient Greece from the age of heroes through the birth of logic and history to the imitative art of the Alexandrian revival.

†0620. Classical Origins of Western Thought: Rome. Cr. 4.

Masterpieces of Roman literature from the period of Italic Dominion through the late Republic and Empire to the "Confessions" of St. Augustine.

†0621. Studies in Drama. Cr. 4 (Max. 8).

Prereq: Classics 0100 and consent of instructor. Selected topics ranging from an analysis of the works of a single dramatist to comparative studies focusing on one or more major themes.

†0626. Studies in Mythology. Cr. 4 (Max. 8).

Prereq: Classics 0200 and consent of instructor. Significant themes ranging from myth in literature, art and religion to psychoanalysis of myth.

0650. Classics in Secondary Schools. Cr. 1-3 (Max. 9).

Prereq: written consent of chairman. Continuing series of summer seminars for current or prospective secondary school teachers.

0790. Directed Readings. Cr. 2 (Max. 6).

Prereq: written consent of chairman and graduate officer. Open only to graduate majors who assist in teaching of Classics courses with only two credits allowed per subject area. Supervised supplementary reading in conjunction with assisting in a Classics course.

Classics — Honors Program

0490. Senior Honors Tutorial. Cr. 4-8 (Max. 24).

Prereq: consent of departmental Honors adviser. Open only to students in departmental Honors Program. Independent study under the direction of the Honors adviser, including research for Senior Honors Essay.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

Greek (GRK)

0101. Elementary Greek. Cr. 4.

Basic vocabulary, forms, grammar.

0102. Elementary Greek. Cr. 4.

Prereq: GRK 0101. Continuation of Greek 0101.

0103. Elementary Greek. Cr. 4.

Prereq: GRK 0102. Continuation of Greek 0102. Emphasis on reading ability.

0111. Elementary Modern Greek. Cr. 4.

Training in pronunciation, conversation, and reading.

0112. Elementary Modern Greek. Cr. 4.

Prereq: GRK 0111 or equiv. Continuation of Greek 0111.

0113. Elementary Modern Greek. Cr. 4.

Prereq: GRK 0112 or equiv. Continuation of Greek 0112 with greater emphasis on reading ability.

0199. Intensive Introductory Greek. Cr. 12.

Basic vocabulary, forms and grammar of classical Greek leading to the reading of continuous Greek prose passages.

0201. Classical Greek Prose. Cr. 4.

Prereq: GRK 0103 or 0199. Selections illustrative of various types of prose.

0202. Introduction to Homer. Cr. 4.

Prereq: GRK 0201. Reading of selected passages from the "Iliad" and the "Odyssey," study of fundamentals of Homeric Greek.

0203. New Testament. Cr. 4.

Prereq: GRK 0202 or consent of instructor. Typical examples of textual and interpretive variants; emphasis on reading ability.

0211. Intermediate Modern Greek. Cr. 4.

Prereq: GRK 0113 or equiv. Review of grammar, practice in oral and written modern Greek, based on readings in modern Greek literature.

0212. Intermediate Modern Greek: Speaking and Writing. Cr. 4.

Prereq: GRK 0211 or equiv. Development of language skills; based on reading from contemporary materials. Conducted entirely in Greek.

0261. Readings in Modern Greek Literature. Cr. 4.

Prereq: GRK 0211. Selections from major contemporary authors.

0301. Greek Tragedy. Cr. 4.

Prereq: GRK 0203 or consent of instructor. One tragedy of Euripides, supplemented by selections from the dramas of Aeschylus and Sophocles.

0302. Greek Lyric Poetry. Cr. 4.

Prereq: GRK 0301 or consent of instructor. Personal lyric poetry as the reflection of the individual in post-Homeric Greece.

0303. The Greek Historians. Cr. 4.

Prereq: GRK 0302 or consent of instructor. Representative selections from Herodotus or Thucydides chosen to illustrate the author's approach to the writing of history and to illuminate our understanding of fifth century Athens.

0500. Intensive Greek for Graduate Students. Cr. 4.

Prereq: graduate standing. Introduction to basic vocabulary, forms and grammar of classical Greek leading to the reading of continuous Greek prose passages.

0583. Greek Prose Composition. Cr. 4.

Prereq: GRK 0303 or consent of instructor. Practice in the essentials of writing idiomatic and stylistic Greek prose. Supplementary readings in Greek for imitation.

0584. Attic Orators. Cr. 4.

Prereq: GRK 0303 or consent of instructor. Development of Greek prose style and rhetoric in selected works of the Attic orators.

0585. Greek Comedy. Cr. 4.

Prereq: GRK 0303 or consent of instructor. Representative comedies of Old, Middle, or New Greek Comedy to show the origin, development, and social implications of the genre.

0586. Greek Literature of the Hellenistic Period. Cr. 4.

Prereq: GRK 0303 or consent of instructor. An introduction to such writers as Apollonius of Rhodes, Callimachus and Theocritus.

0590. Directed Study. Cr. 1-4 (Max. 8).

Prereq: undergrad., written consent of chairman; grad., consent of chairman and graduate officer.

0781. Studies in Greek Poetry. Cr. 4 (Max. 12).

Prereq: an undergrad. major in classics or Greek or consent of instructor. A major poet or genre of poetry. Topics to be announced in Schedule of Classes.

0782. Studies in Greek Prose. Cr. 4 (Max. 12).

Prereq: an undergrad. major in classics or Greek or consent of instructor. A major prose author or genre. Topics to be announced in Schedule of Classes.

Latin (LAT)

0101. Elementary Latin. Cr. 4.

Basic vocabulary, forms, grammar.

0102. Elementary Latin. Cr. 4.

Prereq: LAT 0101. Continuation of Latin 0101.

0103. Elementary Latin. Cr. 4.

Prereq: LAT 0102. Continuation of Latin 0102. Emphasis on reading ability.

0150. Intensive Latin Review. Cr. 5.

Prereq: two years of high school Latin or consent of instructor. Open as a beginning language only to majors in another language and to graduate students. Intensive and accelerated review of Latin fundamentals.

0199. Intensive Introductory Latin. Cr. 12.

Basic vocabulary, forms and grammar of Latin leading to the reading of continuous Latin prose passages.

NOTE: Latin 0201, 0202, and 0203 are not to be considered as equivalents of third- and fourth-year high school Latin.

0201. Intermediate Latin. Cr. 4.

Prereq: LAT 0103 or 0150 or 0199 or placement. Selections from prose fiction.

0202. Intermediate Latin. Cr. 4.

Prereq: LAT 0150 or 0201 or placement. Selections from Roman comedy.

0203. Intermediate Latin. Cr. 4.

Prereq: LAT 0202 or placement. Selections from poetry.

0301. Latin Prose Authors. Cr. 4.

Prereq: LAT 0203 or consent of instructor. Selections from Sallust, Nepos, Livy, Suetonius, or letters of Cicero or Pliny.

0302. Catullus and Martial. Cr. 4.

Prereq: LAT 0203 or consent of instructor. Selections from the simpler poems of Catullus and Martial.

0303. Elements of Latin Prose Composition. Cr. 4.

Prereq: LAT 0203 or consent of instructor. Exercises in writing Latin, based on a systematic review of functional grammar.

0500. Intensive Latin for Graduate Students. (12,0). Cr. 4.

Basic vocabulary, forms and grammar of Latin leading to the reading of continuous Latin prose passages.

0519. Survey of Latin Literature I. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Extensive readings from Republican and Early Imperial periods; fundamental aspects of stylistic analysis.

0520. Survey of Latin Literature II. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Extensive readings from late Augustan and Silver periods through the "Confessions" of St. Augustine; stylistic analysis.

0582. Roman Philosophy. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Selections from the philosophical writings of Lucretius, Seneca, and Cicero.

0584. Cicero. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Representative selections.

0585. Vergil. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Representative selections.

0586. Horace. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Representative selections.

0590. Directed Study. Cr. 1-4 (Max. 8).

Prereq: undergrad., written consent of chairman; grad., written consent of chairman and graduate officer.

0619. Teaching Latin Heritage in an Urban Setting. Cr. 4.

Prereq: undergrad. major in Latin or consent of instructor. Methods and materials for teaching Latin heritage in an urban secondary school.

0684. Roman Drama. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Selected plays of Plautus, Terence, and Seneca.

0686. Roman Elegy. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Poems of Tibullus, Propertius, Ovid.

0687. Advanced Prose Composition. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Writing of continuous Latin prose.

0688. Ovid's Metamorphoses. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Intensive study of the style and structure of the "Metamorphoses."

0783. Propertius. Cr. 4.

Prereq: an undergrad. major in Latin. Intensive study of the poetry of Propertius.

0784. Tacitus. Cr. 4.

Prereq: an undergrad. major in Latin. Intensive study of selections from the works of Tacitus.

0785. Lucretius. Cr. 4.

Prereq: an undergrad. major in Latin. Intensive study of the "De Rerum Natura."

0786. Latin Pastoral Poetry. Cr. 4.

Prereq: an undergrad. major in Latin. "Eclogues" and "Georgics" of Vergil.

0787. Roman Satire. Cr. 4.

Prereq: an undergrad. major in Latin. Satires of Horace and Juvenal.

0788. The Roman Revolution. Cr. 4.

Prereq: an undergrad. major in Latin. Intensive study in historical problems related to the fall of the Roman Republic and the establishment of the Empire.

0796. Research Problems. Cr. 1-4 (Max. 8).

Prereq: an undergrad. major in Latin, consent of adviser.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

HISTORY

Office: 838 Mackenzie Hall

Chairman: Alfred H. Kelly

Academic Services Officer: Helen J. Jankowska

Professors

William J. Bossenbrook, Ph.D. (Emeritus), R. V. Burks, Ph.D., Milton Covensky, Ph.D., Corinne Gilb, Ph.D., Sidney Glazer, Ph.D., Edwin C. Hall, Ph.D., S. William Halperin, Ph.D., Winfred A. Harbison, Ph.D. (Emeritus), Finley A. Hooper, Ph.D.; Alfred H. Kelly, Ph.D., Philip P. Mason, Ph.D., T. F. Mayer-Oakes, Ph.D., Forrest McDonald, Ph.D., Grady McWhiney, Ph.D., Richard D. Miles, Ph.D., Raymond C. Miller, Ph.D. (Emeritus), Goldwin Smith, Ph.D., Margaret Sterne, Ph.D. (Emeritus), Robert C. Walton, Ph.D.

Associate Professors

C. Norman Guice, Ph.D., Harry J. Magoulias, Ph.D., Melvin Small, Ph.D., Stanley D. Solvick, Ph.D.

Assistant Professors

Robert J. Abbott, Ph.D., Effie Ambler, Ph.D., Merle Brouwer, Ph.D., Gary Browne, Ph.D., Frederic B. Burnham, Ph.D., Christopher H. Johnson, Ph.D., David A. Levine, Ph.D., F. Richard Place, Ph.D., Alan Raucher, Ph.D., Monica Schuler, M.A., Samuel F. Scott, Ph.D., Stanley Shapiro, Ph.D., James R. Sweeney, Ph.D., Anne Y. Zimmer, Ph.D.

Instructors

Robert M. Slater, M.A., Matthew Schwartz, M.A.

Cooperating Faculty

Wayne Andrews, Ph.D., 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 and Asia, and the Americas

Students planning to major in history are expected to take History 0110, 0120, and 0130 in their first year and one or more of the intermediate course surveys (History 0201, 0202 and 0203; 0255 and 0256; or 0281, 0282 and 0283) in the second year. (History 0201, 0202, and 0203, or their equivalent, are required for all advanced courses in American history in the department.)

The University requirement in American government may be satisfied by the election of History 0201, 0202, and 0203; or History 0516 and 0517.

BACHELOR OF ARTS

Students planning to major in history should first consult the department chairman or department academic services officer, Helen J. Jankowska.

Major Requirements — The minimum requirement for a major in history is forty-four credits (note: majors in the combined curriculum are required by the College of Education to complete forty-five credits). All majors must complete the following: (1) the freshman sequence in Western Civilization (0110, 0120 and 0130); (2) a sophomore sequence in either American history (0201, 0202 and 0203), or English history (0255 and 0256 and one other sophomore history course), or Asian Civilization (0281, 0282 and 0283); and (3) a minimum of twenty credits in advanced courses numbered above 0500, or sixteen of such and History 0310 (Courses cross-listed with Near Eastern Languages and Literatures may fulfill undergraduate degree requirements only by consent of the department *prior* to registration). Students who, because of transfer or for other reasons, do not take History 0110, 0120 and 0130 will take substitute courses approved by the departmental academic services officer. All transfer students must complete a minimum of sixteen advanced credits in the department for major certification.

Recommended Cognate Courses — Cognates for history majors are anthropology, economics, geography, humanities, political science, and sociology. The attention of students of history is directed also to the history of philosophy, the history of art, the history of music, etc., as appropriate electives.

Pre-Law Program — Students who plan to apply for admission to Law School must complete the following major requirements: History 0110, 0120 and 0130; History 0201, 0202 and 0203 or 0255, 0256 and one other sophomore level course; and twenty credits in advanced courses. The following courses are strongly recommended for pre-law students: History 0516, 0517, 0553 and 0554 (see also suggested pre-Law curriculum in the Liberal Arts Undergraduate Curricula).

MASTER OF ARTS

Plan A and Plan B — See "Course Work" below.

Admission — Applicants for this degree should apply to the Graduate Admissions Office in the Administrative Services Building. The department requires the equivalent of an undergraduate major or strong minor in history, with a total undergraduate honor point average of at least 2.75 and an average of 3.0 in history and related subjects. A year survey course in European history and a like survey course in history of the United States, or their equivalents, are prerequisite. The Aptitude and Advanced sections of the Graduate Record Examination are required of all applicants prior to admission.

History 0787 Requirement — Students entering the M.A. Program in History will be required to take History 0787 (Methods and Research in History) in the first quarter of work, or as soon thereafter as the course is offered. For details, see the department's Master of Arts brochure.

Candidacy must be established by the time sixteen graduate credits have been earned. For details, see the department's Master of Arts brochure.

Course Work — A total of forty-eight credits is required for the master's degree in history. The student may elect either Plan A or Plan B, with the advice and consent of the department. Plan A requires a minimum of thirty-six credits in course work (usually seven courses and two seminars) plus a thesis (twelve credits). Plan B requires a minimum of forty-four credits in course work (usually nine courses and two seminars) plus an essay (four credits). For specific seminar requirements see the departmental Master of Arts brochure.

Areas of Study — All students must select two areas of study, one major and one minor, within which to concentrate their courses. The areas selected will be by agreement between the student and his adviser, subject to the approval of the chairman of the Graduate Committee. Principal areas of study offered are in American, European, British, Ancient Byzantine, Asian, African, and Latin American history, and in urban history, the history of religion, intellectual history and archival methods. A student must select his major and minor from two separate areas, except that ancient, medieval, and modern European history may be treated as three distinct areas for this purpose.

Comprehensive Written Examination — Upon completing his course work, the student will take a comprehensive written examination in his two areas of study. Such examinations are generally given twice a year, in October and April. Upon the recommendation of the Graduate Committee, the department may, in certain instances, excuse students of excellent academic achievement from the written examination.

Thesis or Essay Subjects — All thesis or essay subjects and finished theses or essays must be approved by both the adviser and the departmental Graduate Committee. The thesis or essay may be a product of the student's seminar work. Three copies of the thesis final draft (two for essays) as previously approved must be submitted to the adviser at least thirty days before the Graduate Division's filing date. Upon acceptance of the essay or thesis, the department will certify the student for his M.A. degree.

Proficiency in a Foreign Language is not a general requirement. In individual programs, it may be necessary in order to pursue research in certain fields.

DOCTOR OF PHILOSOPHY

Admission to the Program — Applicants for the Ph.D. program in history should apply directly to the chairman of the department. Admission to the program is open to selected applicants who possess either the Master of Arts in history or a B.A. degree with suitable undergraduate training in history, and who are recommended for advanced graduate work by those with whom they have previously studied. The Aptitude and Advanced sections of the Graduate Record Examination are required of all applicants prior to admission. Successful applicants will in most instances be awarded Liberal Arts College teaching assistantships. Such grants are renewable at the option of the department for a maximum of three or four years. In no event will the department accept part-time or in-service students in the Ph.D. program.

General Requirements — Students in the Ph.D. program will, without regard to previous training, be required to participate in a full-time one-year introductory seminar designed to acquaint them with fundamental historical problems in western civilization. Students must submit a *Plan of Work* and choose a major adviser within four months of completion of this seminar. The second and third years of study will be devoted principally to seminar and course work, in preparation for the Final Qualifying Examination for Candidacy in three major fields of historical specialization and a related minor cognate field, selected by agreement between each student and the chairman of the departmental Graduate Committee. Students who entered the program with an M.A. degree will be expected to complete this portion of their studies in one year. The department offers Ph.D. work in the following fields.

Group A

Greece and Rome
Medieval Europe
Renaissance and Reformation Europe
Modern Europe I: 1650-1830
Modern Europe II, since 1830
Russia
Central and Eastern Europe
Great Britain and the Commonwealth
The Far East
Byzantium
African History
History of Religion

Group B

The United States: 1492-1815
The United States: 1815-1876
The United States, since 1876
Afro-American
American Diplomatic History
American Constitutional History
American Intellectual History
Archival Methods
History of Detroit and Michigan
Latin America
Urban History

Students will select at least one field of the three required from Group A and at least one from Group B. The minor or cognate field, required by the regulations of the Graduate Division, should be selected by agreement with the chairman of the Departmental Graduate Committee.

Language Requirement — All students must fulfill the Ph.D. language requirement prior to taking the Final Qualifying Examination for Candidacy. For details on administration of the language requirement, see the department's Ph.D. brochure.

Final Qualifying Examination for Candidacy — All students pursuing the Ph.D. program must, not later than the end of their third year of studies, take the Final Qualifying Examination for Candidacy in their three fields of historical specialization, and in the chosen cognate field. For further details, the student should consult the department's Ph.D. brochure.

Preparation of the Dissertation — Candidates will be required to present a dissertation on an original research problem in history, selected by agreement between the candidate and the department committee directing the candidate's program. The department will accept topics chosen only from those fields of specialization in which the candidate has completed advanced seminar work offered by the department. The dissertation will be expected to demonstrate mature capacity to do research on an original problem involving extensive primary materials as well as secondary literature. The student will be expected to register for the seminar in Doctoral Dissertation Research and Direction (History 0999) while his dissertation is in preparation.

The Final Examination — All candidates will be required to present a final lecture, to be delivered upon the satisfactory completion of all other requirements, including acceptance of the dissertation. This presentation will concern itself with the field of the dissertation but may also cover questions in historiography and bibliography, at the discretion of the committee.

COURSES OF INSTRUCTION¹ (HIS)

- 0110. The World and the West: Foundations. Cr. 4.**
Introductory course designed to aid in understanding modern society through study of those civilizations which have preceded it and contributed to it.
- 0120. The World and the West: Medieval and Early Modern Era, 800-1700. Cr. 4.**
Introductory course.
- 0130. The World and the West: The Modern Era since 1700. Cr. 4.**
Introductory course.
- 0201. Growth of American Democracy to 1815. Cr. 4.**
Prereq: sophomore standing. American institutions and ideas in the eighteenth and early nineteenth centuries.
- 0202. Growth of American Democracy, 1815-1885. Cr. 4.**
Prereq: sophomore standing. American culture in the nineteenth century.
- 0203. Growth of American Democracy since 1885. Cr. 4.**
Prereq: sophomore standing. American culture in the late nineteenth and twentieth centuries.
- 0224. History of Michigan. Cr. 4.**
Prereq: sophomore standing. Political, social, economic development of the State, from French explorations to the present.
- 0255. History of England to 1603. Cr. 4.**
Prereq: sophomore standing. Development of British civilization.
- 0256. History of England and Great Britain since 1603. Cr. 4.**
Prereq: sophomore standing. Political, social, economic, literary development.
- 0281. Asian Civilization Survey I: Formative Period. Cr. 4.**
Introduction to historical developments and major characteristics in institutions and thought of the chief civilizations of South and East Asia centering on India and China to about A.D. 300.
- 0282. Asian Civilization Survey II: Golden Ages and Expansion. Cr. 4.**
India from the Gupta to the Mughal periods; China from the Han to the Ch'ing empires. Traditions of Southeast Asia, of Korea, and of Japan to about A.D. 1700.
- 0283. Asian Civilization Survey III: Confrontation with the West. Cr. 4.**
European colonial expansion into South and Southeast Asia; the differing East Asian responses to European stimuli to modernization since the seventeenth century.

0310. Introduction to the Philosophy and Discipline of History. Cr. 4.

Prereq: major in history. Philosophy and history of history.

0314. The Negro's Experience in America I: 1619-1865. Cr. 4.

African origins of the American Negro; transition in Negro status from freedom to slavery; status of the Negro under slavery.

0315. The Negro's Experience in America II: 1865 to the Present. Cr. 4.

The Negro in national life since emancipation.

0350. A Historical View of Labor and Work in America. Cr. 4.

General survey and introduction to the subject of work and labor with contemporary issues. Lectures, guest speakers, films, and photographs to illustrate and amplify subject matter.

0397. Pro-Seminar in European History. Cr. 4 (Max. 8).

Prereq: consent of instructor. Honors work.

0398. Pro-Seminar in American History. Cr. 4 (Max. 8).

Prereq: consent of instructor. Honors work.

0490. Directed Study. Cr. 2-4 (Max. 8).

Prereq: consent of chairman.

The following courses are open only to juniors, seniors and graduate students.

0501. Colonial Heritage of the United States. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Growth of colonial American culture and crises leading to American independence.

0502. Founding of the United States. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Political, military, social, economic developments from the Revolutionary War to War of 1812.

0504. The Civil War. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. From the Secession crisis to Appomattox, with emphasis upon political, social and military developments.

0505. Reconstruction. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Political, social and economic events from 1865 to 1877.

0506. The Emergence of Modern America. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. From Reconstruction to the twentieth century, the rise of big business, government regulations, protest movements, social and intellectual change.

0507. The New Era and the New Deal. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Social and industrial problems of the period 1920-1940; political and institutional problems associated with them.

0508. The Politics of Enterprise, 1860-1900. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Economic and political factors between 1860 and 1900.

0509. The Era of Jacksonian Democracy I: 1815-1829. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv.

0510. The Era of Jacksonian Democracy II: 1829-1845. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0511. The Progressive Era. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. United States in the age of T. Roosevelt, Taft and Wilson. (Formerly History 0608.)

0512. America's Foreign Relations to 1914. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. America's foreign relations from the Revolution to World War I.

0513. America's Foreign Relations since 1914. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. America's foreign relations from World War I to the present.

0514. Pre-Twentieth Century American Urban History in Comparative Perspective (U P 0511). Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Cities in the context of Commercialism, Industrialism, Colonialism and Nationalism, compared with other cities in the world.

0515. Twentieth Century American Cities in World Context (U P 0521). Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv.

0516. Constitutional History of the United States to 1865. Cr. 4.

Prereq: HIS 0201, 0202, 0203, or equiv.; or pre-law standing. Development from English origins to triumph of nationalism in the Civil War and Reconstruction.

0517. Constitutional History of the United States since 1865. Cr. 4.

Prereq: HIS 0201, 0202, 0203, or equiv.; or pre-law standing. Developments from Reconstruction to the present.

0518. Intellectual History of the United States to 1865. Cr. 4.

Prereq: HIS 0201, 0202, or equiv. Influential ideas, systems of thought, national values, and individuals prominent in development of American culture from pre-Revolutionary times to mid-nineteenth century.

0519. Intellectual History of the United States since 1865. Cr. 4.

Prereq: HIS 0203 or equiv. From mid-nineteenth century to the present.

0521. History of the Middle West, Nineteenth and Twentieth Centuries: Political and Economic Development. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv.

0522. History of the Middle West, Nineteenth and Twentieth Centuries: Social and Cultural Development. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv.

0523. The Old South. Cr. 4.

Prereq: HIS 0201, 0202, 0203 or equiv. Life and labor in the South from the eighteenth century to the Civil War.

0524. The New South. Cr. 4.

Prereq: HIS 0201, 0202, 0203 or equiv. Southern culture from the Civil War to the present.

0525. Latin America to 1810. Cr. 4.

Geographical, ethnological, European backgrounds of Latin America.

0526. Latin America since 1810. Cr. 4.

History of the twenty Latin American Republics from the Wars of Independence to the present.

0533. History of Greece. Cr. 4.

Ancient Greek culture, emphasizing political events, social and economic institutions, cultural achievements.

0534. History of Rome. Cr. 4.

Institutional and cultural developments.

0535. The Hellenistic Period. Cr. 4.

From Alexander the Great to Roman conquest of the eastern Mediterranean, emphasizing social and economic developments, Alexandrian science, and Hellenization of the East.

0536. Medieval Civilization I: The Early Middle Ages. Cr. 4.

European society and culture from the fourth century to the disintegration of the Carolingian Empire.

0537. Medieval Civilization II: The High Middle Ages. Cr. 4.

European civilization, tenth to the fifteenth century.

0538. The Renaissance. Cr. 4.

The Renaissance in society, literature, the arts.

0539. The Period of the Reformation. Cr. 4.

Protestant and Catholic reformations and adjustments to social, economic, and political conditions of the sixteenth and seventeenth centuries.

0540. History of France: 1715-1815. Cr. 4.

Prereq: HIS 0130. The Ancient Regime, the Revolution, and Napoleonic France.

0541. History of France since 1815. Cr. 4.

Prereq: HIS 0130. The Restoration monarchies, the Second Empire, the Third Republic, and contemporary France.

0542. The French Revolution. Cr. 4.

Prereq: HIS 0130. Background of the Revolution, its onset in 1789, its climax in the Legislative Assembly and Convention and the reaction under the Directory and Napoleon.

0543. (ECO 0549) American Labor History. Cr. 4.

Prereq: ECO 0101 or consent of instructor. Development of the American labor movement; its behavior in the contemporary scene. Labor's experiments with social, political, legal, economic institutions. Comparisons with foreign labor movements.

0544. History of International Relations, 1815-1914. Cr. 4.

Prereq: HIS 0130. European international relations from the fall of Napoleon and the Vienna settlement to the outbreak of World War I.

0545. European International Relations since 1914. Cr. 4.

Prereq: HIS 0130. Europe from the age of liberalism through total war and totalitarianism, culminating in the contemporary revival of Europe.

0546. Early Modern Europe I: 1555-1660. Cr. 4.

Prereq: HIS 0120, 0130; or consent of instructor. Europe in the early modern period; rise of the modern state, social and economic developments to the middle of the seventeenth century.

0547. Early Modern Europe II: 1660-1789. Cr. 4.

Prereq: HIS 0120, 0130; or consent of instructor. Europe from the middle of the seventeenth century to the French Revolution, with special emphasis on the Enlightenment and social structure of the eighteenth century.

0550. Comparative History: United States and Western Europe, 1890-1940. Cr. 4.

Social and intellectual currents between Europe and America.

0551. Comparative History: United States and Western Europe since 1945. Cr. 4.

Social and intellectual currents between Europe and America in the generation since World War II.

0552. (ECO 0569) Economic Development of Europe. Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. Structural transformation and growth of the European economy.

0553. Constitutional History of England to 1603. Cr. 4.

Prereq: junior standing except for sophomore pre-law students.

0554. Constitutional History of England since 1603. Cr. 4.

Prereq: junior standing except for sophomore pre-law students.

0555. Tudor and Stuart England. Cr. 4.

Social, political, economic forces apparent when England emerged as a modern nation-state.

0556. Eighteenth Century Britain. Cr. 4.

Political, social, economic developments in the Hanoverian era.

0557. Modern Britain: 1815-1900. Cr. 4.

Political, social, economic, intellectual history of Great Britain in the nineteenth century.

0558. Modern Britain since 1900. Cr. 4.

Political, social, economic, intellectual history in the twentieth century.

0559. Byzantine History I: 284-867. Cr. 4.

Prereq: HIS 0110. From Diocletian and Constantine to the Macedonian Dynasty.

0560. Byzantine History II: 867-1453. Cr. 4.

Prereq: HIS 0110 and 0120. From the Macedonian Dynasty to the fall of Constantinople.

0561. History of Russia to 1825. Cr. 4.

Prereq: HIS 0120 and 0130. Political, social, economic, intellectual history.

0562. History of Russia: 1825-1917. Cr. 4.

Prereq: HIS 0130. Political, social, economic, intellectual history.

0563. History of Italy, 1796-1945. Cr. 4.

Prereq: HIS 0130. Political and social history of Italy from Napoleon to Mussolini.

0564. German History: 1648-1871. Cr. 4.

Prereq: HIS 0130. Prussia and Austria from Peace of Westphalia (1648) to unification of Germany (1871). The Baroque age; the classical Humanist tradition; the state and culture conflict.

0565. German History since 1871. Cr. 4.

Prereq: HIS 0130. The German empire, Weimar Republic, rise and fall of Third Reich, and Post-World War II.

0566. History of Eastern Europe to 1918. Cr. 4.

Prereq: HIS 0130. Rise and decline of the Ottoman, Hapsburg and Polish states.

0567. History of Eastern Europe since 1918. Cr. 4.

Prereq: HIS 0130. New nations of Eastern Europe and struggle of Democracy, Fascism and Communism.

0568. The Soviet Union: the Early Years. Cr. 4.

Prereq: HIS 0130 or consent of instructor. Soviet Russia from the Revolution to the Stalin era.

0569. The Soviet Union: the Contemporary Period. Cr. 4.

Prereq: HIS 0130 or consent of instructor. The transformation of Soviet Russia from the "Industrial Revolution" of the 1930's to the present.

0571. History of the Great Eastern Religions. Cr. 4.

Development and basic teachings of Hinduism, Buddhism, Confucianism.

0572. History of the Great Western Religions. Cr. 4.

Development and basic teachings of Judaism, Christianity, the modern secular religions.

0573. European Military History to 1871. Cr. 4.

Prereq: HIS 0110, 0120, and 0130. From antiquity to the American Civil War and Franco-Prussian War.

0574. European Military History since 1871. Cr. 4.

Prereq: HIS 0130. Age of Imperialism to post World War II.

0575. Nineteenth Century European Intellectual History: Conservatism, Liberalism, Socialism. Cr. 4.

Prereq: HIS 0130. European thought from the French Revolution to the late nineteenth century.

0576. Twentieth Century European Intellectual History: Conservatism, Liberalism, Socialism, Communism, Fascism. Cr. 4.

Prereq: HIS 0130. European thought from the late nineteenth century to the present.

0577. The History of Science in the West: Prehistoric Man to the Sixteenth Century. Cr. 4.

Scientific beginnings in prehistoric man; mathematics, astronomy, medicine, magic in Egypt and Mesopotamia; Hellenic and Roman science; Islamic world; transmission of Greek science and Arab mathematics, astronomy, mechanics, optics; the Latin West; science and scholasticism.

0578. The History of Science in the West: Sixteenth to Twentieth Century. Cr. 4.

Science and rise of humanism; cartography and Copernican revolution; physics and mathematics; biology and medicine; seventeenth century scientific revolution; mechanics from Galileo to Newton; new chemistry and classic age of astronomical observation; popularization of science in eighteenth century and transition to contemporary science, technology in nineteenth century.

0579. History of Scientific Revolutions. Cr. 4.

Cultural background, sociological setting, internal structure and historiography of scientific revolutions. Topics to be announced in Schedule of Classes. (Formerly History 0678.)

0583. Development of East Asian Political Thought (P S 0567). Cr. 4.

Chinese and Japanese political philosophies from Confucianism to contemporary thought.

- 0587. History of Africa to 1800. Cr. 4.**
African cultures to 1800; impact of Europe and Islam; emphasis on Africa south of the Sahara.
- 0588. History of Africa since 1800. Cr. 4.**
Extension of European controls in Africa, rise of African resistance, decline of colonial power, emphasis on Africa south of the Sahara.
- 0591. History of China I: Origins of the Traditional Order. Cr. 4.**
From the beginnings through the Han dynasty (to ca. A.D. 220). Prehistoric cultures, the Shang and Chou periods, political and cultural innovations in the Late Chou, the "Age of the Philosophers;" the emergence of the Ch'in unitary state; consolidation and synthesis under the Han.
- 0592. History of China II: Imperial China. Cr. 4.**
From the Han to the Ch'ing (ca. 220-1800). Buddhism and the "barbarian challenge;" the regeneration of empire (Sui-T'ang); new creativity "within the tradition" (T'ang-Sung); the renewed "barbarian challenge" (the Mongol Empire); consolidation of traditional state and society (Ming); apogee of Imperial China under the early Manchus.
- 0593. History of China III: Modern Transformation. Cr. 4.**
Nineteenth and twentieth century developments; the Manchu state in decline; the Opium War and consequent treaty system (1842-1943); rebellions and their aftermath; limited responses to westernization; failure of both restoration and reform efforts; renewed imperialism. Manchu collapse and failure of first republic; revolution in thought and culture. The nationalist period and war with Japan. The rise of Chinese communism.
- 0596. History of the Laboring Classes in Europe: 1770-1875. Cr. 4.**
Prereq: HIS 0130. Transformation of social structure in Europe's revolutionary age.
- 0597. Social History of Europe since 1871. Cr. 4.**
Prereq: HIS 0130. The "second industrial revolution" and the emergence of mass society and the welfare state; social order in a new age of revolution.
- 0602. Studies in the Era of the American Revolution. Cr. 4.**
Prereq: HIS 0201, 0202, and 0203, or equiv. Impact of the American Revolution on American life before the advent of the United States Constitution.
- 0607. (ANT 0607) Oral Tradition and Written History. Cr. 4.**
Prereq: completion of basic survey history requirements. Arguments pro and con for the use of oral material in the compiling of the historical record, and an investigation of past use, misuse of tradition by scholars in the writing of history.
- 0609. Studies in Colonial History. Cr. 4.**
Prereq: HIS 0201, 0202, 0203, 0501; or equiv. Various phases of American life prior to the American Revolution.
- 0610. Studies in Twentieth Century American Political History. Cr. 4.**
Prereq: at least one course in twentieth century United States history or consent of instructor. Readings, discussions, and reports on various aspects of the United States in the twentieth century. Topics to be announced in Schedule of Classes.
- 0611. Studies in United States Labor History. Cr. 4.**
Prereq: at least one advanced course in United States history; HIS 0543 recommended. Readings, discussion, and individual reports; examples of leading secondary literature.
- 0614. Comparative World Cities I. Cr. 4.**
The history of cities and empires in Rome, China, Russia and Germany.
- 0615. Comparative World Cities II. Cr. 4.**
The history of cities in Western Europe, North America, Japan and the Third World.
- 0618. Studies in Recent American Constitutional History. Cr. 4.**
Prereq: HIS 0517 or consent of instructor. A variety of recent problems; e.g., desegregation, political dissidence, presidential power, the draft.
- 0619. Studies in Twentieth Century American Intellectual History. Cr. 4.**
Prereq: HIS 0203 or 0519 or consent of instructor. Major historical trends in American intellectual and social ideas since 1900.
- 0620. Studies in United States Social History. Cr. 4.**
Prereq: HIS 0201, 0202, 0203, or equiv. United States social problems of the early national period, such as master-slave relationships, imprisonment for debt, family structure, penal systems, women's rights. Content varies.
- 0623. Studies in the Civil War Era. Cr. 4 (Max. 8).**
Prereq: HIS 0504 or 0523 and consent of instructor. Selected topics on the Old South, slavery, and the Civil War.
- 0627. Studies in Contemporary Latin America. Cr. 4.**
Political, social, economic, intellectual history.
- 0628. (A H 0600) Art and Architecture in America I. Cr. 4.**
From Jamestown to Civil War.
- 0629. (A H 0601) Art and Architecture in America II. Cr. 4.**
Prereq: HIS 0628. From Lincoln to Woodrow Wilson.
- 0630. (A H 0602) Art and Architecture in America III. Cr. 4.**
Prereq: HIS 0629. From Harding to Nixon.
- 0633. Aegean World to 1100 B.C. Cr. 4.**
Rise and fall of Bronze Age civilization in Crete and the Greek mainland.
- 0634. History of Italy, 1848-1918. Cr. 4.**
Prereq: HIS 0130 or consent of instructor, senior standing. The unification of Italy; united Italy; Italy and World War I.
- 0635. History of Italy since 1918. Cr. 4.**
Prereq: HIS 0130 or consent of instructor. The rise of fascism, the fascist regime, Italy since the fall of Mussolini.
- 0636. Political History of the Major European States: 950-1216. Cr. 4.**
Origins and development of centralized government and the modern state system in Western Europe; institutional, military and diplomatic elements in this evolution.
- 0637. Political History of the Major European States: 1216-1485. Cr. 4.**
Continuation of History 0636.

0638. Studies in the Renaissance and Reformation. Cr. 4.

Prereq: HIS 0538 or consent of instructor. Renaissance in society, literature, the arts.

0640. Studies in the French Revolution. Cr. 4.

Prereq: consent of instructor. Detailed analysis of the social, political, and economic phenomena which constituted the upheaval of 1789-1799 in France and abroad.

0643. Studies in Spanish and Portuguese History. Cr. 4.

Prereq: at least one course in modern European history. Topics to be announced in Schedule of Classes.

0645. History of International Relations: 1919-1939. Cr. 4.

Prereq: HIS 0130. The Treaty of Versailles to the outbreak of World War II.

0647. Studies in Early Modern European History. Cr. 4.

Prereq. or coreq: HIS 0547 or consent of instructor. A variety of specialized topics, e.g. the politics of absolute monarchy, social and economic change, the Enlightenment.

The following courses in Near Eastern history may not be taken in fulfillment of the master's degree in history; departmental approval prior to registration required for undergraduate history major credit.

0648. (N E 0551) History of Civilization of the Ancient Near East I. Cr. 4.

Salient characteristics of Ancient Near Eastern history, law and religion based on source readings in translation from the beginnings to the Hellenistic period.

0649. (N E 0552) History of Civilization of the Ancient Near East II. Cr. 4.

Prereq: HIS 0648 or consent of instructor. Continuation of History 0648.

0650. (N E 0554) History and Civilization of Ancient Israel I. Cr. 4.

Prereq: HIS 0648 or consent of instructor. Historical background of biblical history and religion as illustrated by modern literary and archaeological discoveries from the beginnings to the Hellenistic period.

0651. (N E 0555) History and Civilization of Ancient Israel II. Cr. 4.

Prereq: HIS 0650 or consent of instructor. Continuation of History 0650.

0652. (N E 0565) History of the Jews I. Cr. 4.

From the Hellenistic period to the seventh century.

0653. (N E 0566) History of the Jews II. Cr. 4.

Prereq: HIS 0652 or consent of instructor. The Middle Ages and modern times.

0654. (N E 0567) History of the Arabs I. Cr. 4.

Prereq: junior standing or consent of instructor. Muhammad and the rise of Islam.

0656. (N E 0568) History of the Arabs II. Cr. 4.

Prereq: HIS 0654 or consent of instructor. Origins of the Islamic state.

0657. (N E 0577) Civilization of the Medieval Near East I. Cr. 4. Salient characteristics of Islamic historiography and scholarship, Islamic art.

0658. (N E 0578) Civilization of the Medieval Near East II. Cr. 4. Continuation of History 0657. The Islamic city and urban institutions and the role of minorities in the social and economic life.

0659. (N E 0569) History of the Arabs III. Cr. 4.

Prereq: HIS 0656 or consent of instructor. Formation of the Islamic Empire under the Umayyads and the Abbasids.

0660. (HEB 0509) Hebrew Historical Sources. Cr. 4.

Prereq: consent of instructor. May not be taken in fulfillment of the master's degree in history. Undergraduate majors may fulfill degree requirements with this course only by consent of the department prior to registration. Introduction to early and medieval historical texts and to historiographical materials such as, Ibn Dand, Ibn Yahya and Yuhasin.

0664. History of Germany: 1918-1933. Cr. 4.

Prereq: HIS 0130. Defeat and revolution; the Weimar Republic, the Nazi movement and the advent of Hitler.

0665. Nazi Germany. Cr. 4.

Prereq: HIS 0130. The Nazi movement from inception to downfall.

0673. Topics in the History of American Foreign Relations. Cr. 4.

Prereq: HIS 0513 or consent of instructor. Particular problems and epochs. Topics to be announced in Schedule of Classes.

0674. Studies in the History of Military Thought. Cr. 4.

Prereq: HIS 0573 and 0574; or consent of instructor. Topics to be announced in Schedule of Classes.

0677. History of Race Ideology in the Western World, 1450 to the Present. Cr. 4.

Prereq: HIS 0120, 0130, 0201, or equiv. The rise and development of racial ideology in Europe and America since 1450. The relationship between racial thought and the historical process.

0679. Nineteenth Century East and Central African Kingdoms and European Colonialism. Cr. 4.

Prereq: HIS 0587 or 0588; or consent of instructor. Some primary East and Central African kingdoms and chiefdoms in the nineteenth century and how they interacted with and were acted upon by European influences.

0680. West Africa in the Nineteenth and Twentieth Centuries. Cr. 4.

Prereq: HIS 0587 and 0588 or equiv. in anthropology or political science and consent of instructor. Open only to seniors and graduate students. West Africa prior to European intrusion, European conquest and colonization and effects, rise of nationalism and emergence of new states.

0688. Topics in East Asian History. Cr. 4.

Prereq: consent of instructor. Topics to be announced in Schedule of Classes.

0689. Studies in African History. Cr. 4.

Prereq. or coreq: HIS 0587 and 0588, or consent of instructor. Nineteenth or twentieth century "opening-up," partition and nationalization of Africa.

HONORS PROGRAM

Office: 16.1 Library Court

Director: Jacob E. Nyenhuis, Ph.D.

Assistant Director: Brad Iverson, M.A.

Adviser: Norman J. Kopmeyer, M.A.

See page 188 for a general description of the program.

HONORS COURSES

American Studies 0220. Colloquium in the Recent Past. Cr. 4.

English 0197. Freshman Honors: English I. Cr. 4.

English 0297. Freshman Honors: English II. Cr. 4.

English 0299. Sophomore Honors Colloquium. Cr. 4.

Philosophy 0202. Honors Introduction to Philosophy. Cr. 5.

Political Science 0103. Introduction to American Politics.
Cr. 5.

COURSES WITH HONORS SECTIONS

Anthropology 0520. Social Anthropology. Cr. 4.

Art 0338. Basic Cinematography Techniques. Cr. 4.

Art History 0100. Introduction to the Elements of Art. Cr. 4.

Biology 0103. Introductory Biology. Cr. 5.

Biology 0140. Plant Biology. Cr. 4.

Biology 0160. Animal Biology. Cr. 4.

Biology 0220. Introductory Microbiology. Cr. 4.

Chemistry 0107. Principles of Chemistry I. Cr. 4.

Chemistry 0108. Principles of Chemistry II. Cr. 4.

Chemistry 0110. General Analytical Chemistry. Cr. 4.

Chemistry 0224. Organic Chemistry I. Cr. 4.

Chemistry 0226. Organic Chemistry II. Cr. 4.

Chemistry 0227. Organic Chemistry Laboratory. Cr. 3.

Classics 0100. Introduction to Greek Tragedy. Cr. 4.

Classics 0101. Introduction to Ancient Epic. Cr. 4.

Economics 0101. Survey of Economics I. Cr. 4.

Economics 0102. Survey of Economics II. Cr. 4.

Geology 0101. Principles of Geology I. Cr. 5.

German 0102. Elementary German. Cr. 4.

German 0103. Elementary German. Cr. 4.

German 0201. Intermediate German. Cr. 4.

Humanities 0220. Humanities Honors Colloquium. Cr. 4.

Mathematics 0212. Calculus Functions of Several Variables I.
Cr. 4.

Mathematics 0213. Elementary Linear Algebra. Cr. 4.

Political Science 0208. Contemporary Political Ideologies.
Cr. 4.

Psychology 0198. Introductory Psychology. Cr. 4.

Psychology 0360. The Psychology of Social Behavior. Cr. 4.

Psychology 0430. Abnormal Psychology. Cr. 4.

Speech 0387. Basic Cinematography Techniques. Cr. 4.

Complete information regarding the honors sections and courses may be found under the appropriate departmental heading in this bulletin.

COURSES OF INSTRUCTION¹ (HON)

Seminars and Directed Study

0201. Contemporary Issues. Cr. 1 (Max. 6).

Open only to students in Liberal Arts Honors Program. Interdisciplinary seminar for honors students at all levels. Topics chosen by students and coordinated by faculty leader.

0220. Sophomore Honors Colloquium. Cr. 4 (Max. 12).

Prereq: sophomore standing. Open only to students in Liberal Arts Honors Program. Topics to be announced in Schedule of Classes.

0420. Senior Honors Seminar. Cr. 4 (Max. 12).

Prereq: senior standing. Open only to students in Liberal Arts Honors Program or with consent of director. Topics to be announced in Schedule of Classes.

0481. Perspectives on Science. Cr. 2-4 (Max. 6).

Prereq: senior standing. Open only to students in Liberal Arts Honors Program; others by consent of director. Interdisciplinary seminar focusing on nature of twentieth century scientific activity and its human concomitants. Modern historical source materials as case studies of such developments as quantum mechanics, the airplane, cybernetics.

0483. Economic Issues. Cr. 4.

Prereq: ECO 0101 and 0102; senior standing. Open only to students in Liberal Arts Honors Program, or others with consent of director. Current interest and controversy. Interdisciplinary approaches involving sociology, psychology and history.

0484. Plato's Republic. Cr. 4.

Prereq: senior standing. Open only to students in Liberal Arts Honors Program; others with consent of director. Intensive study and application of the political and social principles of Plato's "Republic" with emphasis on their significance for Americans today.

**0485. Analytic Thinking and Social-Environmental Problems.
Cr. 4.**

Specific modern societal problems using the analytical, operational, and quantitative modes of thinking characteristic of modern science.

0486. Contemporary Issues of the Middle East. Cr. 4.

Prereq: senior standing. Open only to students in Liberal Arts Honors Program; others by consent of director. Five important issues in the Middle East. Speakers from such areas as economics, political science and anthropology will serve as guest lecturers.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0487. (GER 0663) Problems in German Literary and Aesthetic Theory. Cr. 4.

Prereq: senior standing; restricted to students in Liberal Arts Honors Program; others by consent of director. Major critics or criticism of a period, analyses of texts, ideas, and important aesthetic questions.

0490. Directed Study. Cr. 2-4 (Max. 16).

Prereq: written consent of director.

0491. Mysticism of the West. Cr. 4.

Prereq: senior standing. Open only to students in Liberal Arts Honors Program, others by consent of director. Selected writings of Western mystical writers from Plato, Plotinus and Augustine to modern times.

0492. Religious Ideas and Issues. Cr. 4 (Max. 12).

Prereq: senior standing; open only to students in Liberal Arts Honors Program or by consent of director. Examples: religion and revolution; the problem of God and the new quest for transcendence; theories of religion. Topics to be announced in Schedule of Classes.

0493. Intellectual Odysseys. Cr. 4-6 (Max. 12).

Prereq: senior standing; open only to students in Liberal Arts Honors Program or consent of director. Consideration of the ideas of major figures in intellectual history through analysis of their works. Topics to be announced in Schedule of Classes.



284 College of Liberal Arts

HUMANITIES

Office: 403 Library Court

Chairman: Homer F. Edwards, Jr.

Professors

Bernard M. Goldman, Ph.D., Chester F. Kuhn, M.A., D.Hu.L. (Emeritus)

Associate Professor

Homer F. Edwards, Jr., Ph.D.

Assistant Professors

Margarette Eby, Ph.D., Jonathan C. George, M.A., Marilyn L. Mitchell, Ph.D., John R. Shriver, Ph.D., Richard P. Studing, Ph.D.

Instructor

Peter B. DeWitt, D.M.A.

DEGREE PROGRAMS

Bachelor of Arts — with a major in humanities

Master of Arts — with a major in humanities

Master of Arts in Teaching College Humanities

BACHELOR OF ARTS

Special Curriculum

The humanities curriculum is intended to encourage a wide variety of emphases according to the interests, training, needs, and professional academic objectives of the individual, providing a flexible framework for comparative studies. The principal areas covered are art, history, languages, literature, music, and philosophy.

Major Programs — The humanities major is a field or area major, that is, a program of studies chosen from the offerings of several departments both within and outside of the general area of the humanities. Students planning to major in humanities should consult with the Department Chairman before beginning the sophomore year. For first year college elections, students should follow the outline of the General Curriculum. (See page 193.)

Candidates for the B.A. degree with a major in humanities may choose from among the following types of programs:

Comparative Literature — This program provides for the combined study of any two or more literatures and cultures — e.g., North American (English) and South American (Spanish), or Italian and English, or French, German, and Spanish.

Creative Arts — The creative arts program provides training (a) in combinations of artistic mediums — for example, a

combination of music composition and basic design in the visual arts, or literary technique and music composition, or some other combination of the techniques of literature, music, and the visual arts; (b) in combinations of the historical development of several mediums — for example, the history of the visual arts and the history of literature or of music; (c) combination of humanities major with dance cognate.

The Arts and Society — This combined program provides study in the history of the arts and in the social sciences, principally history and sociology — for example, some combination of the political, social, and economic history of the nineteenth century with the history of nineteenth century painting, or music, or literature; or the history of the arts and the political and social history of the Middle Ages, or the Renaissance, or the Baroque, or the Enlightenment, or the Romantic Movement.

Area Study — The language and culture of the Russian or German areas of Europe, various phases of American culture, Asian studies, and general linguistics are examples of area study programs.

Curriculum and Major Requirements — The College Group Requirements and other graduation requirements must be met. The following courses or equivalent training are also required of all major students:

1. Humanities 0110, 0111, and 0112.
2. Humanities 0201 or 0501.
3. Humanities 0533 or 0535 or 0536 or 0537 or 0538 or 0539; 0575 or 0576 and 0585 or 0586 or 0587.
4. Humanities 0497.
5. History 0110, 0120, and 0130, or Social Science 0191 and 0192.
6. One or more introductory courses in each of the following: history of art, history of music, psychology.
7. Philosophy 0370.
8. If the candidate plans to concentrate in comparative literature, twenty credits (beyond the three elementary courses or their equivalent) in at least one language other than English.

To insure adequate focusing of the course of study, each major student must formulate a statement of the purpose of his proposed course of study and must shape his plan to include both (a) a minimal core of thirty-six credits in the area of principal concentration; (b) a minimum of thirty-six credits in some combination of at least two other subjects related to the principal concentration.

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-four credits in course work plus an essay.

For this degree, three types of programs have been developed: those designed for undergraduate humanities majors.

2. those designed for students whose undergraduate majors are outside of the humanities, but who wish a graduate major in the area.
3. those designed for students with an undergraduate major, or its near equivalent, in one of the humanities areas who wish to continue advanced work in that specific field, but wish some preparation in the broader field of the humanities as well.

Admission — The applicant must have met the Group Requirements (or their equivalents) for the bachelor's degree in the College of Liberal Arts. In addition, Art History 0111 and 0112, and Music 0137 and 0138 (or equivalents) are required.

The Graduate Record Examination is required.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — Each program must be approved by a graduate adviser or the Committee on Graduate Study. The following specimen program, including twenty-four credits in required humanities courses and twenty-four credits in electives, is typical. At least one seminar or course at the 0700 level in addition to the seminar, Humanities 0797, is required. A final oral examination is also required.

Required Courses — Humanities 0533 or 0535 or 0536 or 0537 or 0538 or 0539; 0575 or 0576; 0585 or 0586 or 0587 and 0701, 0797, 0799.....24 credits

Typical Electives —	<i>credits</i>
Art	8
Literature, English or foreign	8
Music	8
Philosophy	4

A written examination in one foreign language is required for graduation.

Students desiring a concentration in American studies must include Humanities 0575 and 0576 for a total of eight credits.

A special requirement for students in the area of Asian studies is demonstration of an elementary knowledge of fundamentals of one oriental language.

The essay must show evidence of ability to correlate and integrate materials from the various arts.

Master of Arts in Teaching College Humanities

Plan B — Forty-four credits in course work plus an essay.

In addition to the admission and candidacy requirements for the M.A. above, the following courses are required:

	<i>credits</i>
Humanities 0526 and 0527; 0536 or 0537 or 0538 or 0539; 0701.....	16
Humanities 0791 and 0792	8
Philosophy 0571 or English 0605	4
Theoretical and Behavioral Foundations 7607	4
Seminar, Humanities 0797	4
Additional credits in Humanities	8
Essay, Humanities 0799	4

Information about prerequisite preparation and degree requirements may be obtained from the department.

COURSES OF INSTRUCTION¹ (HUM)

0101. Art and Music in Western Civilization. Cr. 4.

No credit for humanities majors. Historical survey of the visual arts and music from the Classical period to the present.

0110. Humanities Survey I. Cr. 4.

Introduction survey of arts and ideas in the Greco-Roman world from the fifth century B.C. to the eighth century A.D.

0111. Humanities Survey II. Cr. 4.

Introductory survey of arts and ideas in the Middle Ages and the Renaissance from the eighth century to 1600.

0112. Humanities Survey III. Cr. 4.

Introductory survey of arts and ideas in the modern world from 1600 to the present.

0201. Introduction to the Humanities: Correlation of Literature with the Visual and Musical Arts. Cr. 4.

Exposition and discussion of elements of structure, expression, and style in literature interrelated and juxtaposed with elements of structure, expression, and style in the visual arts and in music.

0202. Introduction to the Humanities: Correlation of the Visual Arts with the Literary and Musical Arts. Cr. 4.

Exposition and discussion of elements of structure, expression, and style in visual arts interrelated and juxtaposed with elements of structure, expression, and style in literature and music.

0203. Introduction to the Humanities: Correlation of Music with Literature and the Visual Arts. Cr. 4.

Exposition and discussion of elements of structure, expression, and style in music interrelated and juxtaposed with elements of structure, expression, and style in literature and the visual arts.

0220. Sophomore Honors Colloquium. Cr. 4 (Max. 12).

Prereq: sophomore standing; open only to students in Liberal Arts Honors Program. Topics to be announced in Schedule of Classes.

0390. Directed Study. Cr. 1-4 (Max. 4).

Prereq: written consent of chairman. Open primarily to junior and senior humanities majors. Advanced reading in a particular area of humanities.

0485. Humanities and Education. Cr. 4.

Major traditions in Western art, literature, and philosophy as they relate to education and the humanities.

0497. Seminar for Seniors. Cr. 4.

Required of humanities majors. Correlation and integration of the major programs under staff direction.

0501. Introduction to the Humanities through the Study of the Arts of the Twentieth Century. Cr. 4.

Prereq: HUM 0112, 0201, 0202, or 0203 or equiv. Elements of stylistic interrelationship as found in the literary, visual, and musical arts of the twentieth century.

0526. Studies in the Arts and Ideas of Western Culture: Hellenic through Early Renaissance. Cr. 4.

Historical comparison of examples from different mediums and arts as expressions of various conceptual systems. Intensive study of selected monuments of art in the areas of visual art, literature, music, investigated in terms of their intrinsic values and interrelationships with other arts as well as relationship to history.

0527. Studies in the Arts and Ideas of Western Culture: Middle Renaissance through the Modern Era. Cr. 4.

Similar approach to that in Humanities 0526.

0533. The Arts in Western Culture: Classical Period. Cr. 4.

Prereq: HUM 0201 or 0202 or related courses in classical culture. Stylistic relationship of the arts; consideration of possible relationships between the arts and other forms of experience and knowledge, such as history, philosophy, religion, and the sciences.

0535. Expression of Western Culture in the Arts during the Gothic Period. Cr. 4.

Prereq: HUM 0202 or 0203 or equiv.; PHI 0571 recommended. Stylistic relationships in the arts; consideration of possible relationship between the arts and other forms of experience and knowledge, such as history, philosophy, religion, and the sciences.

0536. Expression of Western Culture in the Arts during the Renaissance. Cr. 4.

Prereq: related courses in art, literature, music, or philosophy; HUM 0202 or 0203 or equiv.; PHI 0571 recommended. Similar approach to that in Humanities 0535.

0537. Expression of Western Culture in the Arts during the Baroque Period. Cr. 4.

Prereq: HUM 0202 or 0203 or equiv.; PHI 0571 recommended. Similar approach to that in Humanities 0535.

0538. Expression of Western Culture in the Arts during the Romantic Period. Cr. 4.

Prereq: HUM 0202 or 0203 or equiv.; PHI 0571 recommended. Similar approach to that in Humanities 0535.

0539. Expression of Western Culture in the Arts from 1870 to Present. Cr. 4.

Prereq: HUM 0202 or 0203 or 0501 or equiv.; PHI 0571 recommended. Similar approach to that in Humanities 0535.

0575. Studies in the Arts and Ideas of American Culture: Emerson to the Armory Show (1913). Cr. 4.

Prereq: HUM 0501 and one course in American literature or one course in American history or AS 0501 or equiv. Major individuals, schools, and movements in American literature, philosophy, music and visual arts, investigated through their interrelations and their relations to American history.

0576. Studies in the Arts and Ideas of American Culture: Armory Show to the Present. Cr. 4.

Prereq: HUM 0201 or 0501 and one course in American literature or one course in American history or AS 0501 or equiv. Similar approach to that in Humanities 0575.

0585. Introductory Studies: Arts and Ideas of India. Cr. 4.

Major artistic achievements and philosophical concepts as expressed in selected examples from the visual arts, literature, music and drama of India.

0586. Introductory Studies: Arts and Ideas of China. Cr. 4.

Similar approach to that in Humanities 0585.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0587. Introductory Studies: Arts and Ideas of Japan. Cr. 4.
Similar approach to that in Humanities 0585.

0652. Interrelation of the Arts in Critical Theory. Cr. 4.
Sources and content of contemporary theories of criticism; their adequacy when applied to various arts. (Formerly Humanities 0552.)

0665. Studies in Humanities. Cr. 4 (Max. 8).
Intensive study of the arts of a specific aspect of a period, genre, or theme. Topics to be announced in Schedule of Classes.

0695. Twentieth Century Studies. Cr. 4 (Max. 8).
Intensive studies in the interrelation of social, historical and aesthetic factors in the arts of the twentieth century. (Formerly Humanities 0595.)

0701. Bibliography and Methods for Humanities Majors. Cr. 4.
Advanced comparative bibliographic techniques and methods in the arts; examination of methodologies of interdisciplinary studies.

0791. (TED 7851) Problems and Methods of Teaching Humanities in the Community College I. Cr. 3-4.
Prereq: ELD 5851, 8854, or equiv.

0792. (TED 7852) Student Teaching of the Humanities on the Community College Level. Cr. 3-4.
Prereq. or coreq: HUM 0791 and consent of adviser. Offered for S and U grades only.

0794. (TED 7853) Problems and Methods of Teaching Humanities in the Community College II. Cr. 3-4.
Prereq: HUM 0791. Continuation of Humanities 0791.

0796. Research Problems. Cr. 1-4 (Max. 4).
Prereq: written consent of chairman, instructor, and adviser.

0797. Seminar for Graduate Majors. Cr. 4.
Required of humanities majors.

0799. Master's Essay Direction. Cr. 3-4.
Prereq: consent of chairman.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).
Prereq: consent of chairman.

INTERNATIONAL STUDIES

Office: 545 Mackenzie Hall

Acting Director: C. Norman Guice

CURRICULUM AND CO-MAJOR

Programs

Transcript Notation — In this program, the student needs to fulfill only the core requirements, although he may elect more courses.

Co-Major — The student must fulfill the core requirements and elect a maximum of twenty-four credits in elective courses for a total of forty-four credits. These courses may be selected from the booklet *Studies in International Affairs*.

Core Requirements

	<i>credits</i>
ANT 0210 — Introduction to Anthropology. Prereq: soph. standing.	4
ECO 0537 — International Economic Relations. Prereq: ECO 0102 or 0103	4
GEG 0500 — The World Today. Prereq: one course in geography or equiv.	4
HIS 0513 — America's Foreign Relations since 1914. Prereq: HIS 0201, 0202, 0203; or equiv.	4
P S 0281 — World Politics. Prereq: P S 0101 or cons. instr.	4

Courses included in the program in international studies may count toward satisfying the departmental major as well as the core requirements or the electives of the co-major program.

An honors co-major is possible with twenty-four credits in independent reading including a senior essay.

Students who wish more information about the program should consult the Adviser for International Studies, Mr. Edward Jabbour, second floor, Mackenzie Hall.

COURSES OF INSTRUCTION¹ (I S)

0100. China: Past and Present. Cr. 4.
General survey of Chinese civilization, culture and society, from early times to the present.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

JOURNALISM

Office: 212 Old Main

Acting Chairman: Robert D. Highton

Professors

†W. Sprague Holden, M.A. (Emeritus), William White, Ph.D.

Associate Professor

Robert D. Highton, M.A.

Adjunct Assistant Professors

Jay Carr, B.S., R. Hugh Dundas, B.A., Donald S. Easter, Berl Falbaum, B.A., Richard Femmel, B.A., Darwin Martin, B.A., Ladd Neuman, B.A., Allen Phillips, M.A., Jack Pickering, B.A., John Stanley, B.A., Allan Stark, B.A., Michael Trojanowski, B.A.

Cooperating Faculty

Charles A. Lewis, Ph.D., Robert C. MacDonald, B.A., Michael Sibille, M.A.

DEGREE PROGRAM

BACHELOR OF ARTS

with a major in journalism

Journalism may be elected as a major in one of three sequences: (1) newspaper and magazine journalism, (2) radio and television journalism, or (3) advertising and public relations. The journalism major should make a wide selection of liberal arts courses — literature, history, economics, political science, humanities, sociology and other areas important to understanding today's problems.

The media often overlap. Students interested in allied fields should explore the curriculum, requirements and course offerings in mass communications. See the Speech Department for details. A family and consumer resources-journalism sequence is also offered. For details see the Department of Family and Consumer Resources.

Major Requirements

Students who entered college before September 1969 should check the section on College Group Requirements, p. 190.

For all Sequences

<i>English</i>	credits 8
Same as College English Group Requirement. For details, see page 190	

† Deceased

0150—Freshman Literature and Composition	credits 4
0231—Introduction to Poetry	4

Foreign Language 15-18
Same as College Foreign Language Group Requirement.
For details, see page 190

Natural Sciences 16
Same as College Natural Science Group Requirement.
For details, see page 190

Social Sciences 32

Economics 0101—Survey of Economics I 4

Political Science 0101—Introduction to American Government 4

One other Political Science course, preferably 0201—
The Political Process in the Urban Setting 4

Two of these three:

History 0110—The World and the West: Foundations 4

History 0120—The World and the West: Medieval and
Early Modern Era, 800-1700 4

or

History 0130—The World and the West:
The Modern Era since 1700 4

Two of these three:

History 0201—Growth of American Democracy to 1815 4

0202—Growth of American Democracy, 1815-1885 4

0203—Growth of American Democracy since 1885 4

Anthropology 0210—Introduction to Anthropology 4

or

Sociology 0201—Introduction to Sociology 4

Sociology 0511—Public Opinion and the Political
Process—(recommended but not required) 4

Humanities 16
At least twelve credits in literature, including The English Bible as Literature, Shakespeare, Major Authors in American Literature to the Twentieth Century or other American and English non-contemporary literature courses. For details, see Humanities, page 191.

Newspaper-Magazine Sequence

<i>Journalism</i>	(minimum) credits 28
0215—News Reporting	4
0217—Advanced Reporting	4
0301—News Editing	4
0308—Magazine Article Writing	4
0311—History of American Journalism, or 0510—Law of the Press	4
0320—Reporting Public Affairs	4
0401—Journalism Internship	4

Optional

<i>Journalism</i>	
0315—Editorial Writing and Newspaper Reviewing	4
0360—Industrial Editing	4
0370—Radio and Television News Reporting	4
<i>Art</i>	
0238—Photography	4
0239—Photography	4
0540—Photojournalism	4

Public Relations-Advertising Sequence

Journalism (minimum) 18

0215—News Reporting	4
0217—Advanced Reporting	4
0360—Industrial Editing	4
0401—Journalism Internship	4
0510—Law of the Press	4

Business Administration (minimum) 16

Marketing 0532—Business Communications	4
Marketing 0549—Principles of Advertising	4
Marketing 0642—Advertising Copy	4
Marketing 0646—Public Relations of Business	4

Optional

Journalism

0308—Magazine Article Writing	4
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With the journalism adviser's consent, students may substitute optional courses for certain required business administration courses. Majors in this sequence should investigate courses in advertising design (Art 0244 and 0245) offered by the Department of Art and Art History; see p. 208.

Radio-Television Sequence

<i>Journalism</i>	(minimum) 24	<i>credits</i>
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0215—News Reporting	4
0217—Advanced Reporting, or 0308—Magazine Article Writing	4
0320—Reporting Public Affairs	4
0370—Radio and Television News Reporting	4
0401—Journalism Internship	4
0510—Law of the Press	4

Speech (minimum) 12

0200—Effective Speech	4
0270—Introduction to Radio, Television and Film	4
0271—Radio and Television Announcing	4

Optional

Speech

0273—Mass Media Appreciation and Criticism	4
0274—Radio - Television - Film Writing	4
0580—Mass Communications and Society	4

Organizations and Honors—Wayne State University has undergraduate chapters of Sigma Delta Chi and Women in Communications, professional journalism societies. Annual honors to journalism majors include the department's outstanding graduate award and Sigma Delta Chi citations for scholarship and journalistic accomplishment.

Journalism Scholarships and Loan Funds—Journalism majors in the department's advanced courses are eligible for certain scholarships apart from those open to Wayne State students generally. These include awards from the W. Sprague Holden Memorial Fund; The George M. and Mable H. Slocum Foundation, memorials to the late publishers of Automotive News; from the David J. Wilkie Memorial, maintained by the automotive industry; and from Women in Communication, offered by that society's Detroit chapter. Application forms are available at the Journalism office.

Three loan funds give journalism students first preference. They honor three late Detroit newsmen, Arthur Dorazio, Thomas Devine and Milton Lipton. Interest-free loans to students from these and other funds may be arranged through the University's Student Financial Aids Office, 222 Administrative Services Building.

COURSES OF INSTRUCTION¹ (JOU)

0215. News Reporting. Cr. 4.

Prereq: sophomore standing. A basic reporting course: getting the facts and writing them well. Discussion of radio, television, advertising, public relations. Typing essential.

0217. Advanced Reporting. Cr. 4.

Prereq: JOU 0215. Writing more complex news stories.

0301. News Editing. Cr. 4.

Prereq: JOU 0217. Copy reading, headline writing and makeup.

0308. Magazine Article Writing. Cr. 4.

Prereq: JOU 0217. Writing non-fiction articles for magazines with stress on marketing.

0311. History of American Journalism. Cr. 4.

Development of the American press from colonial times.

0315. Newspaper Reviewing. Cr. 4.

Prereq: JOU 0217. Theory and writing of book, theater, music, film, television and other reviews; assessment and examples of criticism in newspapers.

0320. Reporting Public Affairs. Cr. 4.

Prereq: JOU 0217. News coverage and discussion of courts, legislative bodies; city, county, state, federal agencies; other government reporting.

0360. Industrial Editing. Cr. 4.

Special projects of corporate and industrial journalism; publishing employee publications.

0370. Radio and Television News Reporting. Cr. 4.

Prereq: JOU 0217. Fundamentals and techniques of preparing news for broadcasting. Lectures and laboratory.

0401. Journalism Internship. Cr. 4-8.

Prereq: JOU 0217. Open only to journalism majors. Work assignments on daily or weekly campus and community newspapers, radio-television stations and public relations advertising agencies.

0490. Directed Study. Cr. 1-4 (Max. 4).

Prereq: consent journalism adviser. Research on problems or other important aspects of the media.

†0510. Law of the Press. Cr. 4.

Prereq: JOU 0217. Laws dealing with libel, invasion of privacy, contempt of court, copyright; laws affecting newspapers and other mass media as a business; the problems of pornography and obscenity.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

LINGUISTICS

Office: 375 Speech and Foreign Languages Building

Director: Sol Rossman, Ph.D.

Staff: selected from the Departments of Anthropology, English, Mathematics, Near Eastern Languages, Philosophy, Psychology, Romance and Germanic Languages, Slavic Languages, and Speech.

MASTER OF ARTS IN LINGUISTICS

Plan B — Forty-four credits in course work plus an essay.

Admission — All applicants must meet the general standards for admission to graduate study as determined by the University and stated elsewhere in this bulletin. In addition, the student must have taken an introductory course in linguistics and show proficiency in at least one foreign language.

Candidacy — Candidacy must be established by the time sixteen credits have been earned.

Degree Requirements — The student is required to complete a basic core of general linguistics courses and then to concentrate on a particular area of linguistics: for example, ethnolinguistics, psycholinguistics, or a study of a particular language. Programs are to be planned in consultation with the Director of Linguistics and are to be approved by the Linguistics Committee. An essay and final written and oral examination is required.

Courses of Instruction — In addition to the following courses, consult the course offerings of the above named departments.

COURSES OF INSTRUCTION¹ (LIN)

0510. (ANT 0510) The World of Language. Cr. 4.
Introduction to the field of linguistics with concentration on the scope, basic concepts, and methodologies of the field.

0529. (ANT 0529) Introduction to Phonology. Cr. 4.
Prereq: LIN 0510 or consent of instructor. Scientific study of languages through an examination and analysis of linguistic structures; sound systems.

0530. (ANT 0530) Introduction to Morphology. Cr. 4.
Prereq: LIN 0529 or consent of instructor. Continuation of Anthropology 0529. Representation of meaning in the forms of languages.

0531. (ANT 0531) Language and Culture. Cr. 4.
Prereq: ANT 0210 or consent of instructor. Relationship between linguistic categories and patterns of culture. Knowledge of linguistics not required.

0550. (ANT 0550) Syntax. Cr. 4.
Prereq: LIN 0529 and 0530 or consent of instructor. Introduction to syntactic analysis utilizing different theoretical approaches.

0710. (ANT 0710) Studies in Linguistics. Cr. 4-16.

Prereq: LIN 0529, 0530 and 0550. Topics to be announced in Schedule of Classes.

0761. (ANT 0761) Seminar in Problems and Concepts in Linguistics. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories in linguistics. Current developments, problems, and contemporary research orientations in the field. Topics to be announced in Schedule of Classes.

0764. (ANT 0764) Seminar in Problems and Concepts in Linguistic Anthropology. Cr. 4 (Max. 12).

Prereq: LIN 0531 or consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in Schedule of Classes.

0791. (ANT 0791) Directed Study in Linguistics. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

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

Prereq: consent of adviser.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

MATHEMATICS

Office: 646 Mackenzie Hall

Chairman: Martin T. Wechsler

Academic Services Officer: Katherine McDonald

Professors

Albert T. Bharucha-Reid, B.S., Leon Brown, Ph.D., Bertram J. Eisenstadt, Ph.D., Karl W. Folley, Ph.D. (Emeritus), John M. Irwin, Ph.D., Takashi Ito, Ph.D., Andre G. Laurent, Ph.D., D. Clarence Morrow, Ph.D. (Emeritus), Hidegoro Nakano, Ph.D., Togo Nishiura, Ph.D., Owen G. Owens, Ph.D., Wladimir Seidel, Ph.D., Chia Kuei Tsao, Ph.D., Martin T. Wechsler, Ph.D.

Associate Professors

Bess E. Allen, Ph.D. (Emeritus), Gregory F. Bachelis, Ph.D., Clifford O. Bloom, Ph.D., William M. Borgman, Jr., Ph.D., John C. Breckenridge, Ph.D., Pao-Liu Chow, Ph.D., Henryk Fast, Ph.D., David Handel, Ph.D., Lowell J. Hansen, Ph.D., Chorng-Shi Houh, Ph.D., Morris W. Katz, Ph.D., James J. Kelleher, Ph.D., Henry H. Pixley, Ph.D. (Emeritus), Geert C. E. Prins, Ph.D., Choon-Jai Rhee, Ph.D., Bertram M. Schreiber, Ph.D., Harold T. Slaby, Ph.D., Tze-Chien Sun, Ph.D., Paul Weiss, Ph.D., Stephen A. Williams, Ph.D.

Assistant Professors

Eugene Cornelius, Ph.D., Samuel E. Ebenstein, Ph.D., Larry A. Finkelstein, Ph.D., Bruce F. Golbus, M.A., David A. James, Ph.D., David W. Jonah, Ph.D., Keith S. Joseph, Ph.D., Marc W. Konvisser, Ph.D., Don Krakowski, Ph.D., Arunod Kumar, Ph.D., Karl J. Lindberg, Ph.D., Richard I. Loebel, Ph.D., Kim E. Michener, Ph.D., Jingyal Pak, Ph.D., N. D. Prabhakar, Ph.D., Michael D. Weiss, Ph.D., Tin-Kin Wong, Ph.D.

Adjunct Assistant Professor

Richard L. Fremon, Ph.D.

The Mathematics Department's Computer Science Section is listed beginning on page 233.

DEGREE PROGRAMS

Bachelor of Arts — with a major in mathematics

*Bachelor of Arts — with a major in computer science (as a second major only)**

Bachelor of Science — with a major in mathematics

*Bachelor of Science — with a major in computer science (as a second major only)**

*Bachelor of Science in Computer Science**

Master of Arts — with a major in mathematics

Master of Arts — with a major in mathematical statistics

Master of Arts in Applied Mathematics

Master of Arts — with a major in computer science

Master of Science — with a major in computer science

Master of Arts in Teaching College Mathematics

Doctor of Philosophy — with a major in mathematics and specializations in pure mathematics, applied mathematics, and mathematical statistics

The courses offered by the Department of Mathematics serve several purposes: they supply the mathematical preparation necessary for students specializing in the physical, life, or social sciences, in business administration, in engineering, and in education; they provide a route by which students may arrive at the research level in any of several special mathematical areas and in computer science; they allow students to prepare themselves for work as mathematicians, statisticians, and computer specialists in industry and government; and they give an opportunity to all inquisitive students to learn something about modern mathematical ideas.

The departmental programs in computer science have been organized in a separate Computer Science Section. For its programs and course offerings, see page 233.

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 course elections must be signed by a departmental 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 he becomes the student's academic adviser.

THE BASIC SEQUENCE

The sequence consists of mathematics courses 0211, 0212, 0213, 0214, 0215, and 0519. While it is designed to meet the needs of students majoring in mathematics, engineering, or the exact sciences, it is often the best set of courses in mathematics for students with other objectives.

It is important to note that it is not necessary to take the courses of this sequence in numerical order. To meet the needs of a wide variety of students, the sequence provides many options as to order of election. The prerequisites require only that course 0211 be taken first, and that 0212 and 0215 precede 0214. Thus, after completing 0211 the student may elect any of 0212, 0213, or 0215. The order for a given student depends upon the demands of his total program. For example, physics majors are advised to take 0212 as soon as possible, preferably immediately after 0211. Most students will prefer to arrange their elections in the order 0211, 0215, 0212, 0214 which agrees with the order in which the material occurs in the text. Unless the student wants an earlier introduction to linear algebra, he will probably find it easier to take 0213 after 0212.

* See Computer Science Section, page 234.

A student wishing to move more rapidly through this sequence may take more than one course per quarter. For example, he might take 0211 the first quarter, 0212 and 0215 the second quarter, and 0213 and 0214 the third. Students who do not wish to go on to more advanced mathematical work may elect varying parts of this basic sequence.

To enter the Basic Sequence a student must pass Mathematics 0179 or 0180 or obtain a satisfactory score on the Mathematics Qualifying Examination (see below) which is based on three and one-half to four years of college preparatory mathematics including topics from algebra, plane and solid geometry, and trigonometry. Students are not allowed to enroll in Mathematics 0211 without this educational background or its equivalent. Courses designed for other purposes (e.g., general mathematics, consumer mathematics, business mathematics, shop mathematics) do not constitute adequate preparation for this sequence.

MATHEMATICS QUALIFYING EXAMINATION

Designated minimum scores on the Mathematics Qualifying Examination must be achieved within the previous three quarters in order to (a) enroll in Mathematics 0178 (except for certain students from Mathematics 0095 who are recommended by their instructors), (b) enroll in Mathematics 0180, or (c) enroll directly in Mathematics 0211 without first passing Mathematics 0179 or 0180. All transfer students, including those who have had the equivalent of Mathematics 0179 or 0180 at another institution, are required to take the qualifying examination before enrolling in Mathematics 0211.

This examination is administered each quarter. The schedule of examinations appears in the *Schedule of Classes* preceding the list of offerings in mathematics. If possible, a student should take the qualifying examination two quarters before he intends to elect a mathematics course. This will permit the student with a deficiency in preparation to remedy it before he is scheduled to elect the required course. It is important for the student to review thoroughly the basic notions and operations of elementary mathematics before he takes the examination.

The Mathematics Qualifying Examination tests proficiency. Parts A and B of the examination are used to determine eligibility for Mathematics 0178 or 0180. The level of this part corresponds to the competence gained in two and a half years of college preparatory mathematics including topics from elementary algebra and geometry. Candidates for Mathematics 0211 must take the full examination of about two hours duration. The second part of the examination is on a level indicated in the discussion of the Basic Sequence above.

INTRODUCTORY COURSES FOR NON-MAJORS

It must be emphasized that students who, for any purpose, desire a foundation in elementary college level mathematics adequate for continuing with more advanced mathematics should elect the Basic Sequence. On the other hand, for students, undergraduate or graduate, who need an introduction to college level mathematics but do not expect to take advanced courses, the Mathematics Department has designed a

variety of service courses. These courses are collected in a separate list entitled "Service Courses" which appears at the end of the general list. Ordinarily, the courses in this list are not suitable for degree work in mathematics. Courses in the Service Course list are not intended as preparation for more advanced mathematical study. Therefore, they should not be elected by students in any area who plan a continuing education in mathematics.

The General Sequence — Mathematics 0500, 0501, 0502, 0503, 0506. This sequence, to be taken in whole or in part, is designed for the needs of students in certain areas in biology and psychology, the social sciences, education, computer science, and medicine, as well as those with a general cultural interest in mathematical ideas and methods. These courses are in the Service Course list.

It is not intended that students elect courses from both this sequence and the Basic Sequence. Students who for some special reason wish to do so should obtain the consent of an adviser in the Mathematics Department, and must expect some loss of credit. The one exception to this rule is that Mathematics 0211 may be used in place of Mathematics 0500 as a prerequisite for Mathematics 0501 without loss of credit.

Pre-Business Administration — Mathematics 0150 and 0151, (or equivalent for transfer students) are required in this curriculum.

Pre-Education — The student in elementary education normally elects one of the sequences, Mathematics 0111, 0112, 0113 or Mathematics 0120, 0121, 0122. For choice of sequence see the prerequisites listed in the course description of Mathematics 0120.

Non-Technical Course in Concepts — Mathematics 0300, whose description will be found in the Service Course list, is designed for students in non-mathematical fields who are interested in learning about the nature of modern mathematics and its relation to our culture.

ADVANCED COURSES FOR NON-MAJORS

Because of the fundamental role that mathematics plays in all types of scientific and technical endeavor, the advanced course offerings of the Mathematics Department must serve a group considerably larger than those preparing for a career in mathematics alone.

Economics and Business Administration — Mathematics 0583, 0586, and 0587 may be recommended for students in economics and business administration.

Engineering and Physical Applications — For those interested in engineering and physical applications of mathematics, the department offers the courses in its applied sequence, Mathematics 0520, 0521, 0522, 0523, 0524, 0525, 0624, 0625, and Computer Science 0561, 0562, and 0563. Students who feel that they eventually would like to pursue mathematical studies beyond the level of the applied sequence should make every effort to take the mathematics sequences which begin with courses 0510, 0542, and 0660 respectively. This will help prepare them to work with and understand some of the more abstract notions that they will meet in the advanced courses.

STATISTICS

Beginning students are referred to Statistics 0102. For students in the social sciences who have had Mathematics 0500, Mathematics 0503 is recommended. Students in engineering and the physical sciences should consider Mathematics 0504 and 0505. Those whose work demands a good foundation in mathematical statistics are referred to Mathematics 0580, 0581, and 0582.

BACHELOR OF ARTS

In addition to satisfying the general requirements of the College of Liberal Arts for this degree, the candidate must complete the Basic Sequence and then continue with option A, B, C, or D as described below. Students intending to go on to graduate study in mathematics are advised to elect option A.

BACHELOR OF SCIENCE

In addition to satisfying the general requirements of the College of Liberal Arts for this degree, the candidate must complete the Basic Sequence, elect mathematics option A and complete Physics 0217, 0218, and 0219. A candidate for the Bachelor of Science degree in another department who wishes to include mathematics as a second major may substitute option B or D for option A, except that he must still satisfy the Liberal Arts group requirement in foreign language, choosing French, German, or Russian.

OPTIONS

The requirements of the various options are as follows:

OPTION A

1. The Basic Sequence (Mathematics 0211, 0212, 0213, 0214, 0215, and 0519).
2. Mathematics 0580, 0510, 0511, 0512, 0521, 0542, 0543, and 0544.
3. One additional course selected from (a) mathematics courses numbered 0500 or above applicable to degree work in mathematics, or (b) computer science courses numbered 0460 or higher, except Computer Science 0501. Mathematics service courses may not be used to satisfy this requirement. Students in the combined curriculum for secondary teaching should take Mathematics 0636.
4. Satisfaction of the Liberal Arts foreign language requirement by the choice of French, German, or Russian.

OPTION B

1. The Basic Sequence.
2. Mathematics 0580 (or 0221), 0510, 0511, 0513, 0514 or 0542, and 0521.

3. One additional course selected from (a) mathematics courses numbered 0500 or above applicable to degree work in mathematics or (b) computer science courses numbered 0460 or higher, except Computer Science 0501. Mathematics service courses may not be used to satisfy this requirement. Students in the combined curriculum for secondary teaching should take Mathematics 0636.

4. Satisfaction of the Liberal Arts foreign language group requirement (French, German, or Russian recommended).

OPTION C

This option is available only to students in the Combined Curriculum for Secondary Teaching.

1. The Basic Sequence.
2. Mathematics 0510, 0636, 0637, and 0638.
3. Mathematics 0511 or 0513 or 0530.
4. Two additional courses selected from (a) mathematics courses numbered 0500 or above applicable to degree work in mathematics, or (b) computer science courses numbered 0460 or higher, except Computer Science 0501. Mathematics service courses may not be used to satisfy this requirement.
5. Satisfaction of the Liberal Arts foreign language group requirement (French, German, or Russian recommended).

OPTION D

This option is designed for mathematics majors with a strong interest in computer science.

1. The Basic Sequence.
2. Mathematics 0580, 0510, 0513, and Computer Science 0201, 0220, 0221, 0320, 0440, 0460.
3. Two additional courses selected from group (a) Mathematics 0511, 0514, 0521, 0542, or group (b) Computer Science 0510, 0520, 0530, 0540, 0560, 0561, 0562, and Mathematics 0535. A student may choose any two of the above courses, but if he wishes to do graduate work in Mathematics he should choose both courses from group (a), and if he wishes to do graduate work in computer science he should choose both courses from group (b).
4. Satisfaction of the Liberal Arts foreign language group requirement (French, German, or Russian recommended).

Total Hours in Major— Students may take no more than sixty-eight credits in mathematics and no more than sixty-eight credits in computer science.

Honor Point Average— For majors, the honor point average in mathematics (MAT) courses must be at least 2.0. The major who elects option D must satisfy this requirement and also have an average of 2.0 or higher in computer science (CSC) courses.

Combined Curriculum for Secondary Teaching— Under the Combined Curriculum (see Teacher Preparation Curricula),

it is possible to earn a bachelor's degree in mathematics and at the same time a secondary teaching certificate. Students in this curriculum may satisfy the mathematics part of their degree requirements by any of the degree programs specified above. Those students who are admitted into and complete the Combined Curriculum for Secondary Teaching may satisfy the mathematics requirements for the Bachelor of Arts with a major in mathematics by electing option C (above). It is stressed, first, that students in the combined curriculum with education are the only ones who may use option C, and, second, that these students are not restricted to option C but may use options A, B, or D if they choose.

Language Recommendations — The department recommends that its majors take at least two quarters of foreign language beyond the group requirement. This additional work could be in a second foreign language.

Double Major — Students whose field of concentration is closely related to mathematics and who have an independent interest in mathematics should consider the declaration of a double major with mathematics. It is usually possible to combine the work of a mathematics major with one in physics or chemistry. The growing use of mathematical methods in the life sciences, the social sciences, and in the operation of large government and industrial organizations makes the mathematics major program a rewarding educational experience for students interested in these fields.

Honors Program for Majors — In order to graduate with honors in mathematics a student must satisfy the requirements for a Bachelor of Science degree, must take the Honors Advanced Calculus (see below), and must fulfill a Senior Task. The student must also satisfy the general Liberal Arts Honors Program requirements. Interested students should consult a member of the Mathematics Honors Committee while still in the Basic Sequence.

Honors Advanced Calculus — The Advanced Calculus sequence, Mathematics 0419, 0420, 0421, is designed not only for students in the Mathematics Honors Program, but also for the well-prepared student in engineering, physics, and other studies who desires a thorough understanding of the calculus. This twelve-credit sequence constitutes a one year sequence normally beginning each fall quarter; a student completing this sequence need not take Mathematics 0213, 0519, 0520, and 0521 (fifteen credits).

Only students who intend to take the complete sequence should enroll. A 3.0 average, or higher, in Mathematics 0211, 0212, 0214, and 0215 is required for admittance to the sequence.

Honors Sections in the Basic Sequence — An Honors section in Mathematics 0212 is taught in the winter quarter, and one in Mathematics 0214 in the spring quarter. A 3.0, or higher, average in Basic Sequence courses already taken is required for admittance.

ADMISSION TO GRADUATE STUDY

All applicants must meet the general standards for admission to graduate study as determined by the University. See page 16 in this bulletin.

Except for the program leading to the degree of Master of Arts in Applied Mathematics, the entrance requirements for the master's programs in mathematics and statistics are successful completion of eighteen quarter credits (twelve semester credits) in mathematics beyond sophomore calculus (equivalent to the Basic Sequence described above); this course work should include advanced calculus and linear or modern algebra. Courses, such as the history of mathematics or the teaching of mathematics, in which the study of mathematics itself is not the primary purpose will not be counted towards this requirement. As preparation for graduate study, the Mathematics Department strongly recommends undergraduate course work along the line of the option A, bachelor's degree, described above.

Applicants for the program leading to the degree of Master of Arts in Applied Mathematics must have either eighteen credits beyond the calculus sequence *or* knowledge equivalent to Mathematics 0211-0215, 0519, 0513, 0521, 0220, or 0280 and a good background in some area in which he is planning to apply mathematics. A bachelor's degree in mathematics is not required.

Doctoral applicants must have completed a master's degree in mathematics or reached an equivalent level of advancement. The department Graduate Committee may make exceptions to this rule in cases where unusual ability has been demonstrated. Admission to the doctoral program will be granted only to those whose records indicate an ability to succeed in advanced study and research.

Students interested in graduate study in computer science are referred to the discussion preceding the list of computer science courses. (See page 236.)

GRADUATE DEGREES

All graduate degrees are governed by general University regulations. Information concerning these may be found in the Liberal Arts Academic Regulations section of this bulletin and also in the Graduate Division section. Degree applicants are expected to inform themselves concerning these regulations and to take the responsibility of conforming to them. Additional requirements for specific graduate degrees in mathematics are explained below.

MASTER OF ARTS

The requirements for the Master of Arts degree with a major in mathematics are as follows:

1. Forty-eight credits earned in accordance with plan A, or forty-five credits in accordance with plans B or C. These plans are described below.

2. Election of all the following courses not previously completed: Mathematics 0510, 0511, 0512, 0542, 0543, 0544, 0660, 0661.

3. Election of at least two of the following if not previously completed: Mathematics 0522, 0524, 0525, 0580, 0581, 0582, 0583, 0586, 0587, 0591, 0624, 0625, and Computer Science 0561.

4. Election of at least one of the following: Mathematics 0612, 0613, 0626, 0641, 0650, 0664, 0665, 0726, 0728, 0742, 0751, 0760.

5. By the time eighteen credits have been earned a *Plan of Work*, approved by a departmental adviser, should be submitted to the director of the master's program in mathematics. At this time the Graduate Committee will act on the application for candidacy. The student will not be allowed to take more than eighteen credits in the master's program unless candidacy has been established.

6. In the *Plan of Work* the student will state his choice of one of the following plans:

Plan A — Completion of a thesis for twelve credits with the remaining credit earned in course work.

Plan B — Completion of an essay for three or four credits with the remaining credit earned in course work.

Plan C — All credits earned in course work. The final oral examination (see below) is compulsory in this plan.

The choice of plan must be approved by the Graduate Committee.

7. There is a final oral examination for the master's degree. All students in Plan C are required to take this examination. Students in Plan A or B may, upon recommendation of the thesis or essay adviser, be excused from the final oral examination by the Graduate Committee.

NOTE — Candidates for the Master of Arts degree with a major in mathematics or in mathematical statistics are exempt from the requirement that eight credits in the major field must be in courses numbered 0700 and above.

Computer Science Cognates — For students interested in computer science, the following courses are suitable cognates: Computer Science 0560, 0561, 0562, 0563, 0610, 0620, 0670, 0675, 0760.

Secondary Teaching Option — To exercise this option a student should declare his specialization in secondary teaching on his *Plan of Work*. He 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 he so desires, modify the requirements for his Master of Arts degree in any or all of the following ways:

a) substitute the sequence Mathematics 0513, 0514, 0638 for the sequence 0542, 0543, 0544 in satisfying requirement 2.

b) substitute Mathematics 0637 for 0580 in satisfying requirement 3.

c) add Mathematics 0636 to the list of courses from which he may choose in satisfying requirement 4.

Master of Arts with a Major in Mathematical Statistics

The requirements for this degree differ from those for the Master of Arts with a major in mathematics (see above) only in that the three requirements 2, 3, and 4 are replaced by a single one:

2a. Election of all the following courses not previously completed: Mathematics 0510, 0511, 0512, 0542, 0543, 0544, 0580, 0581, 0582, 0700, 0701. Mathematics 0751 is recommended.

It is stressed that all other requirements (1, 5, 6, and 7 above) are the same, except that the essay under Plan B must be written in the area of mathematical statistics.

Master of Arts in Teaching College Mathematics

The requirements for this degree coincide with those for the Master of Arts with a major in mathematics (see above) except that:

a) a total of forty-eight credits is required.

b) requirements 2, 3, and 4 are replaced by a single requirement, namely, election of all of the following courses not previously completed: Mathematics 0510, 0511, 0512, 0516, 0542, 0543, 0544, 0791, 0792, 0794, and Computer Science 0561.

c) only plan B (see above) is permitted.

Master of Arts in Applied Mathematics

This degree is designed for students who are interested in applying mathematics to different areas (e.g., biology, chemistry, computer science, economics, engineering, geology, medical science, physics, psychology, social science). The program is flexible in that it does not represent the teaching of any fixed body of knowledge. It does require two areas of concentration, one of these being the major in mathematics (pure and applied) with emphasis on the applicable subjects. The second area is to be the minor field to which the student is interested in applying mathematics. Mathematical methods are emphasized.

DEGREE REQUIREMENTS

1) A minimum of forty-eight credits with at least twenty-four credits in mathematics courses as outlined in (2).

2) Election of at least thirty credits from the following courses not previously completed: Mathematics courses with number 0514 or above (except 0542, 0543, 0544, and the courses for teachers) and computer science courses 0561, 0562, 0563.

3) Each student must declare a minor (e.g., one of the areas mentioned above) in which he is planning to apply mathematics. He must have at least twelve credits in his minor area.

4) The entire program of study must be a coordinated one that meets with the approval of his adviser.

At the time of his admission to this program, a student will be assigned an adviser to help him plan his program.

Each student in this program will ordinarily be required to write a project-type essay with three to four credits under the direction of a supervisor in the Mathematics Department and an adviser from some department related to his minor area.

The selection of advisers and topics must be approved by the Graduate Committee of the Mathematics Department.

DOCTOR OF PHILOSOPHY

All applicants for the degree of Doctor of Philosophy with a major in mathematics are urged first to study the general University requirements for this degree and to plan their programs so that all those requirements are fulfilled in the proper order and at the proper times. Listed below are the major steps in earning this degree. Specific requirements of the Mathematics Department are included.

Foreign Language Requirement—Candidates for the Ph.D. degree in mathematics must satisfy the following two-part foreign language requirement:

(1) Satisfactory performance on a standardized (ETS) examination, or satisfactory completion of two years of college level course work, in one of the following languages: French, German, or Russian. Students who elect to satisfy this part of the requirement by course work are also required to pass a reading examination of the mathematical literature in the same language. This examination will be administered by the Department of Mathematics.

(2) Satisfactory performance on a reading examination of the mathematical literature in a foreign language other than the one selected under (1). The language selected for the reading examination, as well as the examiner, must be approved by the Graduate Committee.

Completion of part (1) of the foreign language requirement must precede admission to the qualifying examination.

Qualifying Examination—This is a written and oral examination. The student is to take the written part of the qualifying examination approximately one year of full-time study (thirty credits) beyond the master's. Specifically, he should not take more than thirty credits in 0700 level courses before he takes the written part of the qualifying examination. For the purposes of the written part of the qualifying examination, each Ph.D. student is to choose, subject to the approval of his adviser and the Graduate Committee, one primary area and three secondary areas from the following list of subject areas: algebra, complex analysis, computer science, probability, real analysis, statistics, and topology.

As the mathematics department feels that the four areas, algebra, complex analysis, real analysis, and topology, are basic, every Ph.D. student is either to pass a written part of the qualifying exam or to successfully complete the equivalent of our graduate level sequence (0660, 0661; 0728, 0729; 0742, 0743; and 0751, 0752 respectively) in each of the four basic areas. This requirement must be completed before a student can be recommended for candidacy. The oral part of the qualifying examination is to follow within thirty days of the successful completion of the written part. This oral examination will be conducted by the student's doctoral committee and will cover the student's major area and his minor area, along with other relevant material.

Final Oral Examination—The candidate must pass a final oral examination covering his research after his adviser has approved his completed dissertation.

FELLOWSHIPS, ASSISTANTSHIPS, SCHOLARSHIPS

A number of graduate assistantships and research fellowships are available for graduate students. Requests for information should be addressed to the Chairman of the Department of Mathematics.

COURSES OF INSTRUCTION¹ (MAT)

Undergraduate Courses

0095. Algebra. 4 hours.

No degree credit. Offered for S and U grades only. Prereq: one unit of high school algebra. Real number system, operations with algebraic expressions, exponents and radicals, linear equations, systems of two and three linear equations, solutions of quadratic equations by method of factoring; elementary geometry. (For students who need a review of high school algebra and geometry.)

0178. First Course in Elementary Functions. Cr. 3.

Only one credit toward graduation, if the student has also taken Mathematics 0150. Prereq: satisfactory score on qualifying examination or completion of MAT 0095 and consent of instructor. Introduction to the concepts of function; the properties and graphs of polynomials, rational functions, exponential and logarithmic functions, and complex numbers.

0179. Second Course in Elementary Functions. Cr. 3.

Only one credit toward graduation, if the student has taken Mathematics 0150. Prereq: MAT 0178. Continuation of Mathematics 0178. Numerical and analytic trigonometry, analytic geometry of lines and conics.

0180. Elementary Functions. Cr. 5.

No credit after Mathematics 0178 or 0179; only 2 credits toward graduation after Mathematics 0150. Prereq: satisfactory score in qualifying examination based on one and one-half units of high school algebra, one unit of high school geometry. The properties and graphs of polynomials, rational functions, trigonometric functions, exponentials and logarithms; properties and graphical representation of complex numbers.

0205. Analytic Geometry. Cr. 2.

Prereq: MAT 0211. Lines, conics and general curves in two dimensions; rotations and translations; polar, cylindrical and spherical coordinates; space curves, cylinders, and quadric surfaces.

*0211. Calculus of Functions of One Variable I. Cr. 4.

No credit after Mathematics 0151 or 0500. Prereq: MAT 0179 or 0180 or satisfactory score in mathematics qualifying examination. Concept and interpretation of the derivative and integral; differentiation of rational functions, sine, and cosine; the indefinite integral, area under a curve, the definite integral.

*0212. Calculus of Functions of Several Variables I. Cr. 4.

Prereq: MAT 0211. Vectors and coordinate systems in two and

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

* For recommended order of election, see page 291.

three dimensions; lines, planes, and conic sections; functions of several variables, partial derivatives.

***0213. Elementary Linear Algebra. Cr. 4.**

Prereq: MAT 0211. Introduction to linear systems, matrices, linear transformations, bases, dimension, determinants, inner products and Eigenvalue methods.

***0214. Calculus of Functions of Several Variables II. Cr. 4.**

Prereq: MAT 0212 and 0215. Gradient, directional derivatives; multiple integrals; infinite series; hyperbolic functions.

***0215. Calculus of Functions of One Variable II. Cr. 4.**

Prereq: MAT 0211. Methods of integration; applications of the definite integral to area, volume, arc length, and surface area; derivatives and integrals of trigonometric functions, logarithms, and exponential functions.

0221. Elementary Probability. Cr. 4.

Prereq: MAT 0211. No credit after Mathematics 0580 or Mathematics 0637. Finite sample spaces, probability of events, random variables, mean, variance, joint probability functions, sample mean, counting techniques.

Undergraduate and Graduate Courses

Prerequisites — Knowledge of analytical geometry and calculus is normally a prerequisite for all upper division and graduate courses in mathematics. Mathematics 0211, 0212, 0213, 0214, 0215, and 0519 make up the six-quarter Basic Sequence which is used for this preparation.

0419. Linear Algebra and Differential Equations: Honors Program. Cr. 4.

No credit after Mathematics 0519. Prereq: 3.0 h.p.a. in MAT 0211, 0212, 0214 and 0215. Students who intend to take this course need not take Mathematics 0213. Matrices and linear transformations; inner products; characteristic vectors; first order differential equations; algebraic methods in systems of linear differential equations.

0420. Advanced Calculus I: Honors Program. Cr. 4.

Prereq: MAT 0419. Infinite series; series solutions of differential equations; Taylor's Theorem and maxima and minima for several variables; uniform convergence; improper integrals; Gamma function.

0421. Advanced Calculus II: Honors Program. Cr. 4.

Prereq: MAT 0420. Implicit function theorem, line and surface integrals; Green's Theorem; Divergence Theorem, Stoke's Theorem.

0490. Directed Study: Honors Program. Cr. 2-6.

Prereq: admission to Honors Program by Mathematics Honors Committee. Independent study.

0510. Introduction to Analysis I. Cr. 4.

Prereq: MAT 0519. The real number system; set theory; metric spaces; sequences and series.

0511. Introduction to Analysis II. Cr. 4.

Prereq: MAT 0510. The basic theorems of continuous functions; theory of differentiation; and the Riemann-Stieltjes integral.

0512. Introduction to Analysis III. Cr. 4.

Prereq: MAT 0511. Continuation of integration theory; sequences and series of functions.

0513. Linear Algebra I. Cr. 4.

No credit after Mathematics 0544. Prereq: MAT 0213 and 0214. Vector spaces, linear transformations and matrices, rank and nullity, Euclidean spaces, determinants.

0514. Linear Algebra II. Cr. 4.

No credit after Mathematics 0544. Prereq: MAT 0513. Equivalence and similarity, characteristic vectors, canonical forms, quadratic forms.

0516. Elements of Geometry. Cr. 4.

Only three credits toward graduation after Mathematics 0636. Students who intend to take Mathematics 0636 should not take this course. Prereq: The Basic Sequence. Brief review of analytic geometry of space using vector methods; projective geometry of one, two and three dimensions; homogeneous coordinates.

0517. Topics in Geometry. Cr. 4.

Prereq: MAT 0513 and 0516. Axioms for projective geometry; coordinatization of Desarguean projective geometries; collineations and correlations; pole and polar theory of conics and quadrics; non-Euclidean geometries.

†0519. Differential Equations. Cr. 4.

Prereq: MAT 0213, 0214 and 0215. First order differential equations; linear differential equations with constant coefficients; series solutions.

0520. Vector Analysis. Cr. 3.

Prereq: MAT 0519. Vector functions of one variable scalar and vector fields, line and surface integrals, divergence theorem, Green's theorem, Stoke's theorem, curvilinear coordinates.

0521. Advanced Calculus. Cr. 4.

Prereq: MAT 0519. Taylor's theorem, maxima and minima for functions of several variables, LaGrange multipliers, infinite series, Fourier series, Legendre polynomials, improper integrals, the Gamma function, Jacobians, implicit function theorems, change of variable in a multiple integral.

0522. Applied Analysis I. Cr. 4.

Prereq: MAT 0521 or equiv. Partial differential equations of mathematical physics; orthogonal functions; Sturm-Liouville problems; Fourier series; Bessel functions and Legendre polynomials with applications to boundary value problems.

0523. Applied Analysis II. Cr. 4.

Prereq: MAT 0521. Introduction to complex analysis; Cauchy integral theorem; residue calculus; conformal mapping.

0524. Applied Analysis III. Cr. 4.

Prereq: MAT 0522 and 0523. Properties of the Laplace and Fourier transformations; the Laplace and Fourier inversion integrals; applications to partial differential equations.

0525. Tensor Analysis. Cr. 3.

Prereq: MAT 0521 and some knowledge of linear algebra. Tensors under orthogonal and affine transformations. Algebraic operations and symmetries. Tensor fields under transformation to curvilinear coordinates. Integral theorems. Covariant differentiation. Applications to mechanics of continua and physical fields.

* For recommended order of election, see page 291.

† No credit (major, minor, or cognate) is awarded for this course toward a graduate degree in mathematics or statistics.

0530. Elementary Theory of Numbers. Cr. 4.

Prereq: MAT 0214 and 0215. Unique factorization theorem; order of magnitude of arithmetic functions; congruences, quadratic residues, law of reciprocity; continued fractions; elements of geometry of numbers; second pearl of numbers theory.

†0532. Elementary Topology of Surfaces. Cr. 3.

Prereq: MAT 0214. An intuitive approach to the topology of surfaces. Classification of triangulated surfaces by cut and paste techniques; sphere, torus, mobius strip, Klein bottle, projective plane; Euler characteristic.

0535. (PHI 0535) Logical Systems I. Cr. 4.

Prereq: PHI 0230 or 0320, or MAT 0510 or 0542 or consent of instructor. Metaresults concerning formal systems for sentential logic and first-order predicate logic; soundness, completeness; independence of axioms.

0539. (PHI 0539) Logical Systems II. Cr. 4.

Prereq: MAT 0535 or consent of instructor. Godel's incompleteness theorem for elementary arithmetic; Tarski's theorem; Church's theorem.

0540. Theory of Sets I. Cr. 3.

Prereq: MAT 0510. Set operations, cardinal numbers, order types, ordinal numbers.

0541. Theory of Sets II. Cr. 3.

Prereq: MAT 0540. Well-ordering theorem and applications, continuum problem, Borel and Souslin sets.

0542. Algebra I. Cr. 4.

No credit after Mathematics 0638. Prereq: MAT 0519. Groups, permutations, normal sub-groups, homomorphisms.

0543. Algebra II. Cr. 4.

Prereq: MAT 0542. Rings and ideals, polynomial rings, integral domains, fields, vector spaces and modules.

0544. Algebra III. Cr. 4.

No credit after Mathematics 0514; only two credits toward graduation after Mathematics 0513. Prereq: MAT 0543. Linear transformations and matrices, characteristic vectors, Jordan and rational canonical forms, Hermitian and unitary transformations.

0550. Problem Solving. Cr. 1-3 (Max. 9).

Prereq: consent of instructor. Problems from a specific area of mathematics. Topics to be announced in Schedule of Classes.

0555. Approximation Theory. Cr. 4.

Prereq: MAT 0521. The problem of linear approximation; Tschebyscheff approximations; approximations by algebraic and trigonometric polynomials; approximations by rational functions; approximation of functions of several variables.

0580. Probability and Stochastic Processes I. Cr. 4.

No credit after Mathematics 0221 and 0637. Only 2 credits toward graduation if the student has taken one of Mathematics 0221 or 0637. Prereq: MAT 0214 and 0215. Sample space, combinatory analysis, basic probability theorems, conditional probability, independence; binomial, normal, Poisson's distributions.

0581. Probability and Stochastic Processes II. Cr. 3.

Prereq: MAT 0580, or 0221 and consent of instructor. Random

variables, transformation of variables, limit theorems, generating functions.

0582. Survey of Statistical Methods. Cr. 4.

Prereq: MAT 0580. Statistical methods in estimation, testing hypotheses, linear models and non-parametrics.

0583. Introduction to Theory of Games. Cr. 3.

Prereq: MAT 0214 and 0215, or MAT 0502. Fundamental notions; saddle points; minimax theorem for rectangular games in extensive form; games with complete and incomplete information.

0586. Introduction to the Theory of Linear Programming. Cr. 3.

Prereq: MAT 0213 or 0502. The principles of linear programming, and duality theorem, simplex methods; applications to industrial and business problems.

0587. Linear Programming and Operations Research. Cr. 4.

Prereq: MAT 0213 and 0214, or 0502; or consent of instructor. Operations-research models and economic decisions, their mathematical basis and economic meaning; computation techniques. Simplex method. Transportation problems. Inventory models. Queuing models.

0590. Directed Study. Cr. 1-5 (Max. 12).

Prereq: undergrad., consent of adviser and written consent of chairman; grad., consent of adviser and written consent of chairman and graduate officer. Undergraduates who elect this course must be mathematics majors of honors caliber. Content will vary to satisfy needs of individual student.

0591. Applied Stochastic Processes. Cr. 4.

Prereq: MAT 0581 or consent of instructor. Non-measure theoretic introduction to theory of stochastic processes and its applications, with emphasis on Markov processes and stationary processes.

0612. Graph Theory. Cr. 4.

Prereq: MAT 0513 or 0544 or consent of instructor. Graphs and directed graphs, trees, cycles and circuits, connectivity, planar graphs and coloring questions, graphs and matrices, graphs and groups, Polya's Theorem and counting problems.

0613. Combinatorial Mathematics. Cr. 4.

Prereq: MAT 0542 or consent of instructor. Permutations and combinations, generating functions, principles of inclusion and exclusion, matrices of zeroes and ones, block designs, matroids.

0618. Recursive Function Theory (PHI 0618). Cr. 4.

Prereq: MAT 0510 and 0542, or 0535, or consent of instructor. Computable operators; primitive recursive functions, recursively enumerable sets; recursive and partially recursive functions; numbered sets (Godel, Kleene and Post numberings); algorithms and Turing machines; unsolvable problems and degrees of unsolvability.

0624. Applied Functional Analysis I. Cr. 3.

Prereq: MAT 0510 or consent of instructor. Operator techniques in Hilbert and Banach spaces; function spaces which appear in applications and their properties; solution of operator equations in Banach spaces; selected problems.

0625. Applied Functional Analysis II. Cr. 3.

Prereq: MAT 0624. Continuation of Mathematics 0624 with emphasis on nonlinear techniques in Banach spaces.

0626. Algebraic Theory of Numbers. Cr. 4.

Prereq: MAT 0544. General arithmetic in algebraic number fields; algebraic integers; ideals, fundamental theorem of ideal theory,

†No credit (major, minor, or cognate) is awarded for this course toward a graduate degree in mathematics or statistics.

ideal classes, Dirichlet's unit theorem, prime ideal theorem, determination of class number, Gaussian sums.

0636. Topics in Mathematics for High School Teachers I. Cr. 4.
Only 3 credits toward graduation after Mathematics 0516. Prereq: MAT 0213, 0214, and 0215. Modern geometry; Euclidean geometry based on Hilbert's axioms; projective and affine planes; non-Euclidean geometries.

0637. Topics in Mathematics for High School Teachers II. Cr. 4.
No credit after Mathematics 0580. Only 2 credits toward graduation after Mathematics 0221. Prereq: MAT 0213, 0214, and 0215. Combinatorial analysis; basic concepts and methods of probability and statistical inference.

0638. Topics in Mathematics for High School Teachers III. Cr. 4.
No credit after Mathematics 0542. Prereq: MAT 0213, 0214, 0215. Algebraic structure: rings, integral domains, fields, groups; applications to polynomials and theory of equations.

0641. Differential Geometry. Cr. 3.
Prereq: MAT 0512 and 0514 or 0544. Elementary differential geometry of curves and surfaces in E^3 ; introductory concepts of differential geometry in the large.

0650. Theory of Functions of Several Variables. Cr. 4.
Prereq: MAT 0512, and 0514; or 0544 or consent of instructor. Calculus of functions of several variables from the abstract point of view. The modern notion of the differential, implicit function theorem, differential forms, exterior differentiation, integration over surfaces, generalized Stoke's theorem.

0660. Complex Analysis I. Cr. 4.
Prereq: MAT 0512. Linear transformations, elementary functions, complex differentiation, Cauchy's integral theorem, power series, analytic continuation, monodromy theorem.

0661. Complex Analysis II. Cr. 4.
Prereq: MAT 0660. Laurent expansion; residue theorem; singularities; entire, meromorphic, and periodic functions.

0664. Ordinary Differential Equations I. Cr. 3.
Prereq: MAT 0512; MAT 0514 or 0544 recommended. Existence and uniqueness theory; dependence of solutions on initial conditions and parameters; linear systems with constant and periodic coefficients.

0665. Partial Differential Equations I. Cr. 3.
Prereq: MAT 0512; MAT 0660 recommended. Characteristic theory for first order equations; Cauchy-Kowalewski theorem; uniqueness of solutions of second order elliptic equations; properties of potential function.

0675. Fluid Dynamics. Cr. 4.
Prereq: MAT 0522 and either 0523 or 0660; or consent of instructor. Mathematical foundations of theory of viscous Newtonian fluids; Navier-Stokes equations; specialization to perfect and inviscid compressible fluids.

Design of Experiments. Cr. 3.
MAT 0582. Randomized blocks; Latin and Graeco-Latin factorial designs, confounding, split plot, fractional replicated incomplete blocks.

Graduate Courses

0700. Mathematical Statistics I. Cr. 3.
Prereq: MAT 0582. Characteristic functions, limit theorems, sampling distributions; formulation of decision problems; estimation theory (sufficiency, invariance, minimax); applications and problems. (Formerly Mathematics 0680.)

0701. Mathematical Statistics II. Cr. 3.
Prereq: MAT 0700. Testing hypotheses theory (Neyman-Pearson and decision theory approaches); linear models; regression on sure and random variables, and as approximation; applications and problems. (Formerly Mathematics 0681.)

0705. Group Theory. Cr. 3.
Prereq: MAT 0743 or consent of instructor. Selected topics from the theory of p-groups, nilpotent groups, solvable groups, and simple groups.

0710. Homological Algebra I. Cr. 3.
Prereq: MAT 0744. Modules; categories and functors; tensor, Hom, Tor, and Ext.

0711. Homological Algebra II. Cr. 3.
Prereq: MAT 0710. The dimension of rings and modules; derived functors; cohomology of groups and algebras.

0712. Homological Algebra III. Cr. 3.
Prereq: MAT 0711. Current topics in homological algebra.

0713. Structure of Rings and Fields. Cr. 4.
Prereq: MAT 0744. General field extensions and the transcendence basis; algebraically closed fields; elementary Galois theory; the Wedderburn structure theorems for semi-simple and simple rings with minimum condition.

0716. Linear Lattices I. Cr. 3.
Prereq: MAT 0751. Projection operators, spectral theory, classification of linear lattices, combined convergence.

0717. Linear Lattices II. Cr. 3.
Prereq: MAT 0716. Linear functionals, dual theory, dilatator theory, extension of linear lattices.

0719. Hilbert Space. Cr. 4.
Prereq: MAT 0751; MAT 0752 recommended. Geometry of Hilbert space, the spectral theorem, commuting operator, rings of operators.

0720. Linear Spaces I. Cr. 3.
Prereq: MAT 0751. Linear topological spaces; uniform boundedness, interior mappings, Hahn-Banach theorem; vector lattices.

0721. Linear Spaces II. Cr. 3.
Prereq: MAT 0720. Krein-Milman theorem; inversion theorem, duality, properties of weak topologies.

0722. Banach Algebra. Cr. 4.
Prereq: MAT 0721. Stone's representation theorem, Gelfand representation of normed algebra, analytic function on an algebra, Wiener's Tauberian theorems, Haar integral on a group, almost periodic functions, character group, positive definite functions, Fourier transforms, Plancherel's theorem.

0723. Locally Convex Spaces. Cr. 4.
Prereq: MAT 0721. Convex sets and locally convex spaces, in-

ductive limits, tonnelle and bornological spaces, theorems of Mackey, spaces of transformations; duality in locally convex spaces; LF-spaces and theory of distributions.

0724. Semigroups of Operators. Cr. 4.

Prereq: MAT 0719, 0720, or consent of instructor. Fundamental operators of semigroup theory and their properties, generation of semigroups, semigroups in concrete Banach spaces, perturbation theory, equivalent semigroups, approximation of semigroups. Applications to differential equations, Markov processes, and mathematical physics.

0726. Analytical Theory of Numbers. Cr. 4.

Prereq: MAT 0660. Prime number theorem and zeta-function; character sums and arithmetic progressions; partitions and the circle method.

0728. General Topology I. Cr. 4.

Prereq: MAT 0512 or consent of instructor. Metric spaces, topological spaces, separation axioms, convergence, connectedness, compactness, continuous functions, product spaces, introduction to quotient spaces. (Formerly Mathematics 0630.)

0729. General Topology II. Cr. 3.

Prereq: MAT 0728. Quotient spaces continued, metrization theorems, uniform spaces, function spaces, selected topics. (Formerly Mathematics 0631.)

0730. General Topology III. Cr. 3.

Prereq: MAT 0729. Homotopy, maps into spheres, manifolds, and selected topics.

0731. Algebraic Topology I. Cr. 3.

Prereq: MAT 0730. Homology and cohomology theories.

0732. Algebraic Topology II. Cr. 3.

Prereq: MAT 0731. Fundamental groups and higher homotopy groups, and selected topics.

0734. Topological Groups. Cr. 3.

Prereq: MAT 0544 and 0728. Basic properties; compact and locally compact groups; Haar measure and integration on locally compact groups; group algebras.

0741. Differentiable Manifolds. Cr. 3.

Prereq: MAT 0641 and 0728. Basic properties; differentiable mappings; vectors and tensors; tensor bundles; exterior differential forms; introduction to Riemannian manifolds.

0742. Advanced Algebra I. Cr. 4.

Prereq: MAT 0544 or consent of instructor. Groups, categories and functors, free groups, finitely generated groups; rings and homomorphisms, commutative rings, modules, homology, polynomials, Noetherian rings, modules over principal ideal rings. (Formerly Mathematics 0642.)

0743. Advanced Algebra II. Cr. 4.

Prereq: MAT 0742 or consent of instructor. Field theory, algebraic extensions, Galois theory, extensions of rings, transcendence extensions, valuation rings. (Formerly Mathematics 0643.)

0744. Advanced Algebra III. Cr. 4.

Prereq: MAT 0743 or consent of instructor. Linear algebra and representations, matrices, bilinear forms, multi-linear products, semi-simplicity, density theorem, group representations.

0746. Abelian Groups I. Cr. 3.

Prereq: MAT 0544. Finitely generated groups, free groups, divisible groups, structure theorems.

0747. Abelian Groups II. Cr. 3.

Prereq: MAT 0746. Structure theorems, basic sub-groups, groups without elements of infinite height, mixed groups, torsion free groups.

0748. Abelian Groups III. Cr. 3.

Prereq: MAT 0747. Endomorphism rings, homological methods in Abelian groups.

0750. Advanced Problem Solving. Cr. 3 (Max. 9).

Prereq: consent of instructor. Problem solving in selected advanced areas of mathematics. Topics to be announced in Schedule of Classes.

0751. Theory of Functions of a Real Variable I. Cr. 4.

Prereq: MAT 0512. Lebesgue measure of E_n ; general and Carathéodory measure; classes (BV, AC) of set, point, and interval functions; Lebesgue and Lebesgue-Stieltjes integrals. (Formerly Mathematics 0651.)

0752. Theory of Functions of a Real Variable II. Cr. 4.

Prereq: MAT 0751. Fubini's theorem, classical inequalities, Vitali covering theorem, differentiation, function spaces, orthogonal functions, applications to complex functions. (Formerly Mathematics 0652.)

0753. Theory of Functions of a Real Variable III. Cr. 4.

Prereq: MAT 0752. Generalized derivatives, the Denjoy integrals, comparison with the Lebesgue integral, function spaces, selected topics.

0755. Fourier Series I. Cr. 3.

Prereq: MAT 0752. Trigonometric and orthonormal series, summability, ordinary and absolute convergence, transformation of series.

0756. Fourier Series II. Cr. 3.

Prereq: MAT 0755. Complex methods, maximal theorems of Hardy and Littlewood, equisummability of series and integrals, interpolation of operators.

0760. Complex Analysis III. Cr. 3.

Prereq: MAT 0661. Algebraic functions, Riemann surfaces, Riemann mapping theorem.

0761. Ordinary Differential Equations II. Cr. 3.

Prereq: MAT 0664 or consent of instructor. Regular and irregular singular points; boundary value problems; stability; theory of linear systems; differential equations in complex plane, Sturm-Liouville theory.

0762. Ordinary Differential Equations III. Cr. 3.

Prereq: MAT 0761 or consent of instructor. Topology of integral curves; limit cycles and singular points; perturbation theory; stability theory of non-linear systems; periodic solutions.

0763. Partial Differential Equations II. Cr. 3.

Prereq: MAT 0665 or consent of instructor. Uniqueness conditions of hyperbolic equations; properties of wave equations; geirsson's mean value theorem; characteristic theory for order hyperbolic equations.

0764. Partial Differential Equations III. Cr. 3.

Prereq: MAT 0661 and 0665 or consent of instructor. Dirichlet problem; method of Perron, variational methods; non-linear equations and equation of Monge-Ampere; minimal surface equation; mixed type equations; "a priori" estimates.

0765. Integral Equations. Cr. 4.

Prereq: MAT 0664 or 0665 or consent of instructor. Fredholm's theorems, symmetric kernels and singular kernels, estimates for characteristic values, non-linear integral equations, applications to potential theory.

0766. Calculus of Variations. Cr. 4.

Prereq: MAT 0664 or consent of instructor. Minima of simple integrals; necessary and sufficient conditions for a minimum; Mayer fields; direct methods of Tonelli; geometrical and physical applications.

0781. Mathematical Foundations of Probability. Cr. 4.

Prereq: MAT 0581 and 0751 or consent of instructor. Probability measure spaces; random variables, convergence concepts; expectation and moments; distribution functions and their transforms; fundamental limit theorems; conditional expectation.

0782. Random Functions. Cr. 4.

Prereq: MAT 0781 or consent of instructor. Infinite products of measurable spaces and Kolmogorov's theorem; separability, measurability and continuity of random functions; basic classes of random functions, in particular Markov processes, stationary processes, martingales.

0783. Abstract Probability. Cr. 4.

Prereq: MAT 0720 and 0782 or consent of instructor. Abstract space-valued random variables and functions; generalized random functions; random operators and equations.

0784. Statistical Estimation Theory. Cr. 4.

Prereq: MAT 0582, 0700, and 0751; or consent of instructor. Maximum likelihood method; method of least squares; unbiased estimation; best asymptotically normal estimators; minimax principle; Bayes theory; linear least squares prediction, smoothing, filtering.

0785. Testing of Statistical Hypotheses. Cr. 4.

Prereq: MAT 0784. Introduction to general decision problems; Neyman-Pearson fundamental lemma; uniformly most powerful tests; unbiased and invariant tests; linear hypotheses.

0786. Non-Parametric Methods in Statistics. Cr. 4.

Prereq: MAT 0785. Basic distributions; location, symmetry, independence tests; randomness; invariance and rank tests; limiting distributions and Chernoff-Savage theorem.

0787. Statistical Sequential Analysis. Cr. 4.

Prereq: MAT 0785. Sequential probability ratio test; Wald's fundamental identity; Bayes procedures; two-stage estimation; estimation of parameters in stochastic processes; stochastic approximation methods.

0788. Statistical Multivariate Analysis I. Cr. 4.

Prereq: MAT 0514 or 0543, and MAT 0785. Vector distributions; covariance as an operator; radial distributions; Hankel transforms; generalized Markov least squares theory; matrix pseudoinverse; multivariate normal distribution; correlation; Hotelling's T^2 ; chi-squared distribution.

Statistical Multivariate Analysis II. Cr. 4.

Prereq: MAT 0788. Wilk's sum of squares; multivariate linear

hypotheses; Hotelling principal components; distribution of characteristic roots; distribution of quadratic forms; discriminant functions; intraclass correlation; equality of means, variances and covariances; factor analysis.

0790. Directed Study. Cr. 1-5 (Max. 18).

Prereq: consent of adviser and graduate officer.

0791. (TED 7851) Problems and Methods of Teaching Mathematics in the Community College I. Cr. 3-4.

Prereq: ELD 5851, 8854 or equiv.

0792. (TED 7852) Student Teaching of Mathematics on the Community College Level. Cr. 3-4.

Prereq. or coreq: MAT 0791 and consent of adviser. Offered for S and U grades only.

0794. (TED 7853) Problems and Methods of Teaching Mathematics in the Community College II. Cr. 3-4.

Prereq: MAT 0791. Continuation of Mathematics 0791.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

0801. Advanced Topics in Algebra. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0802. Advanced Topics in Analysis. Cr. 3-6 (Max. 18).

Prereq: MAT 0752.

0803. Advanced Topics in Differential Equations. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0804. Advanced Topics in Functional Analysis. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0805. Advanced Topics in Topology. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0806. Advanced Topics in Number Theory. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0807. Advanced Topics in Numerical Analysis. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0808. Advanced Topics in Probability. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0809. Advanced Topics in Statistics. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0810. Advanced Topics in Complex Variables. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0811. Advanced Topics in Applied Mathematics. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0812. Advanced Topics in Foundations. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0814. Advanced Topics in Differentiable Manifolds. Cr. 3-6 (Max. 18).

Prereq: consent of instructor.

0850. Mathematics Seminar. Cr. 1-4 (Max. 12).

Prereq: consent of instructor. Seminar in selected research areas. Students report to the seminar on recent research. Topics to be announced in Schedule of Classes.

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

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Cr. 2-16 (45 required).

Prereq: consent of doctoral adviser.

Service Courses

0090. Mathematics for Pre-Nursing Students. Cr. 4.

No degree credit. Offered for S or U grades only. Open only to pre-nursing students. Prereq: one unit of high school algebra. Review of arithmetic and elementary algebra. Fractions, percentage, ratio, proportions, and units of measurement. Operations with algebraic expressions, exponents and radicals, logarithms, linear and quadratic equations.

0110. General Mathematics. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0100, 0101, and 0111. Prereq: placement test. Open only to students in teacher preparation curricula. Arithmetical operations; the number line, fundamentals of geometry.

0111. Mathematics for Elementary School Teachers I. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0100 or 0101. Open only to students in College of Education or in teacher preparation curricula. Sets, logic, analysis of basic operations on integers, fundamental theorem of arithmetic, other bases.

0112. Mathematics for Elementary School Teachers II. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0101. Prereq: MAT 0100 or 0111. Open only to students in College of Education or in teacher preparation curricula. Rational and real numbers, measurement, informal geometry. Theorem of Pythagoras.

0113. Mathematics for Elementary School Teachers III. Cr. 3.

No degree credit in College of Liberal Arts. Prereq: MAT 0101 or 0112. Open only to students in College of Education or in teacher preparation curricula. History of numbers, recreational mathematics, elementary probability.

0120. Mathematical Topics for Elementary School Teachers I. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0101 or 0111. Prereq: three years of high school or college mathematics and consent of adviser. Open only to students in College of Education or in teacher preparation curricula. Sets, logic, mathematical systems, elementary number theory.

0121. Mathematical Topics for Elementary School Teachers II. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0101 or 0112. Prereq: MAT 0120 or 0100 and consent of adviser. Open only to students in College of Education or in teacher preparation curricula. Rational and real number systems, elementary probability and statistics; selected topics of geometry, functions and graphing.

0122. Mathematical Topics for Elementary School Teachers III. Cr. 3.

No degree credit in College of Liberal Arts. Prereq: MAT 0121. Open only to students in College of Education or teacher preparation curricula. History of mathematics, figurate numbers, mathematical puzzles, graph theory, selected topics from elementary topology, curves in the plane.

0150. Finite Mathematics for the Social and Management Sciences. Cr. 4.

No credit after Mathematics 0180. Prereq: one and one-half units of high school algebra and one unit of high school geometry. Students who intend to take MAT 0178, 0179, or 0180 should not take this course. Finite mathematical methods for model building in the social and management sciences. Polynomial, exponential, and logarithmic functions, matrices, and linear programming.

0151. Calculus for the Social and Management Sciences. Cr. 4.

No credit after Mathematics 0211 or 0500. Prereq: MAT 0150 or equiv. Elementary techniques of calculus with particular application to the social and management sciences. Sequences and limits, differentiation, integration, and optimization.

0200. General Mathematics III. Cr. 4.

Prereq: MAT 0101 or 0113. Open only to students in the College of Education or in teacher preparation curricula. Relations, functions, trigonometry, elementary probability.

0300. Concepts of Mathematics. Cr. 4.

Prereq: one year of high school algebra, one semester of high school geometry. Not open to majors; no credit for science group requirements. Introduction to mathematical concepts and methods; their historical development; their significance for society. Cultural course for students who might not take any other mathematics course.

0340. Applied Statistics (E T 0340). Cr. 4.

No degree credit in College of Liberal Arts. Prereq: college algebra. Application of probability concepts; statistical theory in the use of engineering data.

0342. Applied Calculus I (E T 0342). Cr. 4.

No degree credit in College of Liberal Arts. Prereq: MAT 0180. Application of differential and integral calculus and analytical geometry to engineering problem situations.

0344. Applied Calculus II (E T 0344). Cr. 4.

No degree credit in College of Liberal Arts. Prereq: MAT 0342. Continuation of MAT 0342 including the application of ordinary differential equations to engineering problem situations.

†0500. General Mathematical Analysis I. Cr. 4.

No credit after Mathematics 0151 or 0211. Prereq: satisfactory score in mathematics qualifying examination. Brief discussion of number systems and analytic geometry; fundamentals of the differential calculus of one and two variables; applications.

†0501. General Mathematical Analysis II. Cr. 4.

Prereq: MAT 0500, or MAT 0211 and consent of instructor. Fundamentals of integral calculus; calculus of finite differences; difference equations with constant coefficients; first and second order linear differential equations with constant coefficients; approximation of differential equations by difference equations.

†No credit (major, minor, or cognate) is awarded for this course a graduate degree in mathematics or statistics.

†0502. General Mathematical Analysis III. Cr. 4.

Prereq: MAT 0501. Vectors, matrices as linear transformations, algebra of matrices; matrices and graphs; characteristic values and functions; similarity; systems of algebraic, difference, and differential equations; nonnegative matrices; matrices and stability theory.

†0503. Principles of Probability and Statistics: For Social Scientists. Cr. 4.

Prereq: MAT 0501. Introduction to probability, probability models in social sciences, basic probability distributions, sampling fluctuations and distributions, elements of statistical inference, regression and correlation, nonparametric methods.

†0504. Statistical Methods in Industry I. Cr. 4.

Prereq: MAT 0214 and 0215. Probability axioms, elementary probability calculus, probability models in physical sciences, probability and sampling distributions, estimation and testing hypotheses, application to physical problems and research.

†0505. Statistical Methods in Industry II. Cr. 3.

Prereq: MAT 0504 or consent of instructor. Statistical dependence, regression and correlation, elements of variance analysis, stochastic processes.

†0506. Introduction to Finite Mathematics. Cr. 4.

Prereq: MAT 0502 or consent of instructor. Mathematical logic; set theory; induction; combinatorics; linear programming; game theory; graph theory; models.

†0536. Mathematics for Elementary School Teachers I. (TED 5526). Cr. 4.

Credit in College of Education only. Discussion and development of the mathematics upon which much of the current elementary school mathematics curriculum is based. Sets and Venn diagrams; systems of numeration; prime numbers, least common multiple, greatest common divisor; number systems, inverses, identity, associativity, commutativity, and distributivity; modular arithmetic; notions of ratio and percentage.

†0537. Mathematics for Elementary School Teachers II. (TED 5527). Cr. 4.

Credit only in College of Education. Prereq: MAT 0536. A survey of the real number system, algebraic operations, systems of linear equations, theory of equations.

†0548. Mathematics for Junior High School Teachers I. (TED 5528). Cr. 4.

Credit only in College of Education. Prereq: MAT 0537. Basic concepts of Euclidean geometry; trigonometric solutions of triangles.

†0549. Mathematics for Junior High School Teachers II. (TED 5529). Cr. 4.

Credit only in College of Education. Prereq: MAT 0548. Trigonometry and analytical geometry.

†0605. Mathematics for High School Teachers I. Cr. 1-6 (Max. 8).

Prereq: consent of instructor. Open only to in-service teachers under sponsorship of National Science Foundation. Selected topics from set theory, abstract algebra; geometry, and current curriculum studies in high school mathematics at ninth grade level.

†0606. Mathematics for High School Teachers II. Cr. 3-6.

Prereq: consent of instructor. Open only to in-service teachers under sponsorship of National Science Foundation. Continuation of Mathematics 0605.

†0607. Mathematics for High School Teachers III. Cr. 3-6.

Prereq: consent of instructor. Open only to in-service teachers under sponsorship of National Science Foundation. Continuation of Mathematics 0606.

†0645. Mathematics for High School Teachers IV. Cr. 3-6.

Prereq: consent of instructor. For in-service teachers only. Selected topics from linear algebra, analytic geometry and calculus, probability and statistics, and current curriculum studies in high school mathematics at tenth grade level.

†0646. Mathematics for High School Teachers V. Cr. 3-4 (Max. 8).

Prereq: consent of instructor. For in-service teachers only. Continuation of Mathematics 0645.

†0647. Mathematics for High School Teachers VI. Cr. 1-6.

Prereq: consent of instructor. For in-service teachers only. Continuation of Mathematics 0646.

†0648. Mathematics for High School Teachers VII. Cr. 3-4.

Prereq: consent of instructor. For in-service teachers only. Continuation of Mathematics 0647.

†No credit (major, minor, or cognate) is awarded for this course toward a graduate degree in mathematics or statistics.

†No credit (major, minor, or cognate) is awarded for this course toward a graduate degree in mathematics or statistics.

MUSIC

Office: 105 Music Wing

Chairman: Robert F. Lawson

Vice Chairman and Liaison for Music Education:
Wilbur J. Peterson

Academic Services Officers: Michael Zelenak and
Donald Blancett

Professors

Louise W. Conklin, M.A. (Emeritus), Mark F. DeLeonard, M.Ed., James A. Gibb, M.A. (Emeritus), Malcolm M. Johns, M.M., Harry M. Langsford, Ph.D., Robert F. Lawson, M.A., Wilbur J. Peterson, Ed.D., Valter Poole, Dipl. (Emeritus), Jason H. Tickton, M.A., Ruth S. Wylie, Ph.D. (Emeritus), C. William Young, Ph.D.

Associate Professors

Harold Arnoldi, M.Ed., Lillian J. Cassie, Ed.D., Angelo M. Cucci, Ed.D., Raymond P. Ferguson, M.M., Morris Hochberg, D.M.A., Bohdan J. Kushnir, Ph.D., Joseph A. Labuta, Ed.D.

Assistant Professors

Celeste Cole, James J. Hartway, Ph.D., Marian V. Lincoln, M.A., Frank Murch, M.M.

Adjunct Professors

Avery Crew (voice), Joseph Fava (guitar), Mischa Kottler, Dipl. (piano), Mischa Mischakoff, Dipl. (violin)

Adjunct Associate Professors

Gerald Bilik, M.M. (theory), Robert H. Cowden, D.M.A. (voice)

Adjunct Assistant Professors

Carl Austin, B.A. (theory), Emily Austin (violin), Clement Barone, Dipl. (flute), Julius Chajes (piano), Clark Eastham, B.M. (piano), Robert Gladstone (string bass), Marjorie Gordon, B.A. (voice), Nathan Gordon, Dipl. (viola), William B. Horner, B.S. (trumpet), Elsie Inselman, B.M. (voice), Robert Jones (trombone and baritone), Margit Kormendy, Dipl. (voice), Gale Kramer, D.M.A. (organ), Homer Lindsey (bassoon), Thaddeus Markiewicz (violoncello), Boris Maximovich (piano), Ervin Monroe, B.M. (flute), Salvatore Rabbio, B.M. (percussion), Joan Rossi, B.M. (voice), Paul Schaller, Dipl. (clarinet), Toma Schwartz, Dipl. (piano), Joseph Skrzynski, B.M. (trombone and baritone), Gordon Smith, B.S. (trumpet), Darwin Swartz, M.M. (piano), James Tamburini (trumpet), Eugene Wade, B.M.E. (french horn), Alvin Yungton, M.A. (theory)

Adjunct Performance Faculty

John Boesen, violin, George Cailotto, free bass accordion, Robert Collins, string bass, Wesley Fishwick, piano, Velma Froude, harp, Oliver Green, clarinet, Walter Hardmann, string bass, Elizabeth Ilku, harp, Wesley Jacobs, tuba, John Kripl,

saxophone, Oscar LaGasse, tuba, Jose Mallare, saxophone, James Muszynski, free bass accordion, Ronald Odmark, oboe, Charles Postlewate, guitar, Charles Sirard, bassoon, Melvin Zeidler, organ

DEGREE PROGRAMS

Bachelor of Arts — with a major in music

Bachelor of Music — with a major in church music, composition, music education, music therapy, performance, and theory

Master of Arts — with a major in music

Master of Music — with a major in composition, theory, performance, and music education

All entering students who intend to major in music must consult the department chairman prior to the first registration so that a curriculum can be assigned and any transfer credits can be evaluated.

The Bachelor of Arts and Master of Arts curricula are designed for those students who wish a broad liberal education.

The Bachelor of Music and Master of Music curricula are for those students who desire professional training in music. They should not be undertaken by students who have had little or no background in music before entering the University. Entrance into either the Bachelor or Master of Music curriculum is dependent upon approval of the divisional director for the curriculum. Students signifying their intention to major in music education are examined in piano and voice for vocal majors, and in a conventional instrument of the band or orchestra for instrumental majors.

All undergraduate students graduating from any of the music curricula must take the departmental comprehensive theory and history examination during the senior year. Furthermore, all students in the Bachelor of Music curricula must be certified in the major area of concentration by the divisional director of that area.

UNDERGRADUATE MAJOR

Group Requirements of the College for all Undergraduate Degrees (see page 190)

General Education Requirements for all Undergraduate Degrees

	<i>credits</i>
English (as prescribed by English Department)	8
Social Sciences, including PHI 0370 and the American Government Requirement	16
PSY 0198, and one elective (PSY 0317 suggested)	8
Science laboratory course elective	5
Physical Science course elective	4
Humanities electives (see p. 191 for restrictions)	16

Professional Education Requirements for Bachelor of Music with a Major in Music Education

As prescribed by the College of Education and Music Education Division

Core Requirements of the Department

For all undergraduate music degrees

1. MUT 0100, 0101, 0102, 0103, 0108, 0109, 0201, 0208
2. MUH 0332, 0333, 0334

For all undergraduate music degrees except instrumental music education

1. MUT 0204, 0205, 0206, 0207, 0209

Concert ensemble and chamber music ensemble requirements for all music majors

1. All undergraduate music majors must fulfill a minimum of twelve quarters of a Concert Ensemble. Students transferring from other institutions and students with professional or military experience must have their transcripts and/or work evaluated by the department chairman for proper advanced credit toward the Concert Ensemble requirement.
2. Concert Ensembles are defined as MUA 0280, 0281, 0283, 0284, 0285, 0287 and 0563.
3. Undergraduate music majors in performance curricula must fulfill specific requirements in Chamber Ensembles. See paragraph six below.
4. Chamber Ensembles are defined as any section of MUA 0288.
5. All undergraduate students who major in music in any of the curricula, and who elect eight or more hours in the fall, winter and spring quarters, must elect a Concert Ensemble concurrently in that quarter. Specific requirements are listed in paragraph six below.

(Please note that part-time undergraduate music majors who elect less than eight hours in any quarter are prohibited from electing private instruction courses (MUP). See instructions governing MUP courses.)

6. In keeping with the above, specific requirements for the various music curricula are given below:
 - a. For Performance Major in organ or church music: any Concert Ensemble (vocal preferred) plus a minimum of one quarter of Chamber Ensemble;
 - b. For Performance Majors in piano; any Concert Ensemble plus a minimum of six quarters of Chamber Ensemble;
 - c. For Performance Majors in voice: any Concert Ensemble selected from MUA 0283, 0284, 0285, 0287, or 0563, with a minimum of six quarters selected from MUA 0284 and 0285;
 - d. For majors in Vocal Music Education: any vocal Concert Ensemble except MUA 0563;
 - e. For Performance Majors in strings: MUA 0281 plus a minimum of six quarters in Chamber Ensemble;
 - f. For string majors in Instrumental Music Education: MUA 0281;
 - g. For Performance Majors in woodwinds, brass or percussion: MUA 0280 or 0281 with a minimum of six quarters in MUA 0281 plus a minimum of six quarters of Chamber Ensemble;
 - h. For woodwind, brass or percussion majors in Instrumental Music Education: MUA 0280 (Note: MUA 0281 may be elected concurrently with 0280 with the permission of the adviser);
 - i. For all other majors in music: any Concert Ensemble.

Additional Specific Curriculum Requirements of the Department

Bachelor of Arts

- a. MUT 0210, 0211, 0308, 0405, 0406, 0203 or 0407;
- b. MUH 0330, 0331, 0335;
- c. MUH 0530 is suggested but not required;
- d. Foreign Language group requirement;
- e. Necessary elections from courses, other than music, to complete graduation requirements.

Bachelor of Music with a Major in Church Music

- a. MUT 0210, 0211, 0308, 0405, 0406, 0203 or 0407;
- b. MUH 0230, 0231, 0330, 0331, 0335, 0535, 0545;
- c. Three quarters of MUA 0573;

- d. One quarter of MUA 0267;
- e. Six quarters of MUP 0121 or equivalent by examination;
- f. Thirty-six credits of MUP 0220 or equivalent by examination;
- g. Special junior and senior recitals arranged by the Director of the Organ and Church Music Division.

Bachelor of Music with a Major in Composition

- a. MUT 0203, 0210, 0211, 0212, 0300, 0301, 0308, 0310, 0312, 0403, 0405, 0406, 0407, 0410, 0411, 0412, 0504;
- b. MUH 0330, 0331, 0335, 0336, or 0436;
- c. Piano proficiency by examination;
- d. Presentation of an original composition approved by the Director of the Theory and Composition Division.

Bachelor of Music with a Major in Music Education

- a. Instrumental Music
 - i. Twelve quarters selected from MUP 0223, 0224, 0225, or 0226 at one hour credit per quarter;
 - ii. MUA 0171, 0271, 0371;
 - iii. Two quarters of MUA 0173; three quarters of MUA 0174; two quarters of MUA 0175; and two quarters of MUA 0176;
 - iv. MUA 0267 (formerly MED 3202), 0268;
 - v. MED 0454 (formerly MED 4205), 0455, 0456;
 - vi. MUT 0507, 0607 (for majors other than string majors);
 - vii. MUT 0300 (for string majors).
- b. Vocal Music
 - i. Two quarters of MUT 0309;
 - ii. MUP 0221 — six quarters at one hour credit per quarter; MUP 0222 — six quarters at one hour credit per quarter (Note: MUA 0172, 0272, 0372 may be substituted for MUP 0222); Six quarters of MUP 0221 or 0222 at one hour credit per quarter as directed by the adviser;
 - iii. MUA 0267 (formerly MED 3202), 0268;
 - iv. MED 0451 (formerly MED 4203), 0452, 0453.

Bachelor of Music with a Major in Music Therapy

- a. MUT 0210, 0308, 0405, 0406, 0203 or 0407;
- b. MUH 0335, 0336, 0436;
- c. Piano proficiency by examination;
- d. MUA 0173, 0174, 0175, 0176;
- e. Proficiency in one of the following instruments by examination: guitar or accordion;
- f. Six quarters of MUP 0122 or equivalent;
- g. MUA 0569, 0571, 0572;
- h. PSY 0317, 0318, 0330, 0335, 0360, 0430;
- i. SPH 0200, 0210.

Note: this degree requires an internship by direction of the departmental chairman for the completion of the prerequisites for certification as a Registered Musical Therapist.

Bachelor of Music with a Major in Performance

- a. MUT 0210, 0308, 0405, 0406, 0203 or 0407;
- b. MUH 0330, 0331, 0335, 0535, 0545; (Note: MUH 0330 not required of voice majors)
- c. Thirty-six credits of MUP 0220-29 in the principal instrument or equivalent by examination;
- d. Three credits of a secondary instrument taken in the MUP 0120-29 series (violinists elect viola);
- 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 area requirement as follows:
 - i. Piano — MUT 0211
 - ii. Strings, Winds, or Percussion — MUT 0300, and MUT 0507
 - iii. Voice — MUH 0542; MUT 0309 and 0508; Proficiency in two foreign romance languages other than the native tongue at the discretion of the adviser
 - iv. Organ — three quarters of MUA 0573; MUA 0570.

Bachelor of Music with a Major in Theory

- MUT 0203, 0210, 0211, 0212, 0300, 0301, 0308, 0310, 0311, 0312, 0402, 0403, 0405, 0406, 0407, 0504, 0507, 0508, 0601;
- MUH 0330, 0331, 0335, 0336, or 0436;
- Piano proficiency by examination;
- MUA 0267, 0268;
- Presentation of a senior-project lecture coordinated by the Director of the Music History Division.

GRADUATE MAJOR

Entrance Requirements — All applicants for graduate degrees are required to pass or have passed the undergraduate comprehensive theory and history examination. Furthermore, all students desiring to pursue any of the Master of Music curricula must be certified for entrance into the program by the divisional director of the major area of concentration.

Candidacy must be established by the time eighteen credits have been earned toward the master's degree. Applicants become degree candidates only upon recommendation of the chairman of the department or the Committee on Graduate Studies.

Plan A — Thirty-six credits in course work plus a thesis, or composition (M.M. in composition only), or recital preparation (M.M. in performance only).

Plan B — Forty-four credits in course work plus an essay.

Plan A or B is open to candidates for the degree of Master of Music with a major in Music Education. Plan A only is open to all other candidates.

Oral Examination — An oral examination is required of all students electing Plan A.

MASTER OF ARTS

Admission — The student must present a minimum of sixty acceptable undergraduate credits in music, distributed according to the requirements for the Bachelor of Arts degree with a major in music or its equivalent. Undergraduate credits transferred from another institution must be evaluated by the department chairman.

	<i>credits</i>
Theory and Music History (minimum of eight credits in each, other than MUH 0530 and 0850)	20
MUH 0530 and 0850	8
Music electives or cognates	8
MUH 0899	12
	48

MASTER OF MUSIC

MAJOR IN COMPOSITION

Prerequisite — Bachelor of Arts with a major in music or Bachelor of Music with a major in theory or composition. Candidates for this degree must have had prior training in

composition and must be prepared to present scores for evidence of proper preparation.

	<i>credits</i>
MUT 0505, 0506, 0601, 0700, 0708, 0710	24
Music History (other than MUH 0530)	8
MUH 0530	4
MUH 0899 — an original composition in one of the larger forms of a minimum of twelve minutes duration; approved by the adviser; separate from the work done in MUT 0710	12
	48

MAJOR IN THEORY

Prerequisite — Bachelor of Arts with a major in music or Bachelor of Music with a major in theory or composition; acceptance into the program by the divisional director for Theory.

	<i>credits</i>
MUT 0505, 0506, 0601, 0700, 0707, 0708	14
Music History (other than MUH 0530 and 0850)	8
MUH 0530 and 0850	8
Music Electives	6
MUH 0899	12
	48

MAJOR IN PERFORMANCE

Prerequisite — Bachelor of Music with a major in performance; acceptance into the program by the divisional director for the performance area.

	<i>credits</i>
MUP — 0700 level — Principal Instrument	12
MUP — 0600 level — Secondary Instrument	4
MUA 0788	2
Music Theory	8
Music History (other than MUH 0530)	8
MUH 0530	4
Music Electives	10
	48

MAJOR IN MUSIC EDUCATION

Prerequisite — Bachelor of Arts or Science in Music Education; acceptance into the program by the divisional director for Music Education.

	<i>credits</i>
Music Education — including MED 0757	18-24
Music History (other than MUH 0530)	8
MUP — 0700 or 0600 level	3
Electives	7-15
MED 0799 or MUH 0899	4 or 12
	minimum 48

COURSES OF INSTRUCTION¹

Theory (MUT)

0100. Theory I. Cr. 2.

Prereq: MUT 0110 or satis. equiv. by examination. Music fundamentals; notation; major and minor scales; intervals; triad construction.

0101. Theory II. Cr. 2.

Prereq: MUT 0100; coreq: MUA 0171 or MUP 0121 or equiv. Introduction to harmonic practice; simple four-part writing with triads; correlated analysis.

0102. Theory III. Cr. 2.

Prereq: MUT 0108; should be elected with Music 0204. Eighteenth century harmonic practice; study of nonharmonic tones; harmonization of chorale melodies in style of J. S. Bach; correlated analysis.

0103. Theory IV. Cr. 2.

Prereq: MUT 0109; should be elected with Music 0205. Continuation of Music 0102, including a study of all conventional seventh chords. Correlated analysis.

0108. Ear Training I. Cr. 2.

Prereq: MUT 0100. Simple melodic and rhythmic dictation; sight singing; interval and triad recognition.

0109. Ear Training II. Cr. 2.

Prereq: MUT 0101. Melodic dictation in one key within a conventional rhythmic context; harmonic dictation employing a grand staff with triads in all positions in one key; sight singing aligned to the work done in melodic dictation; correlated work in score analysis and critical listening.

0110. Elementary Music Theory. Cr. 2.

No degree credit for music majors. Music terminology and standard notation, including intervals and triads.

0201. Theory V. Cr. 2.

Prereq: MUT 0208; should be elected with Music 0206. Comparison of eighteenth and nineteenth century harmonic styles, including altered chords; harmonization of melodies in nineteenth century style. Correlated analysis.

0202. Theory VI. Cr. 2.

Prereq: MUT 0201; should be elected with Music 0207. Introduction to twentieth century harmonic practice. Late nineteenth century chromaticism and its effect on traditional tonal concepts; new harmonic, melodic and tonal concepts embodied in Impressionism; modality and its implications. Correlated analysis and ear training.

0203. Theory VII. Cr. 4.

Prereq: MUT 0202. Survey of twentieth century harmonic practices. New tonal concepts; bi-chordal harmonic structures; quartal harmony; planal writing; serial techniques, other characteristic practices. Correlated analysis and ear training.

0204. Keyboard Harmony I. Cr. 1.

Prereq: MUT 0101; should be elected with Music 0102. Harmonic progressions applied at keyboard; figured bass; harmonization of soprano or bass; modulation; transposition and score reading.

0205. Keyboard Harmony II. Cr. 1.

Prereq: MUT 0204; should be elected with Music 0103. Continuation of Music 0204. Advanced keyboard harmony.

0206. Keyboard Harmony III. Cr. 1.

Prereq: MUT 0205; should be elected with Music 0201. Continuation of Music 0205. Advanced keyboard harmony.

0207. Keyboard Harmony IV. Cr. 1.

Prereq: MUT 0206; should be elected with Music 0202. Continuation of Music 0206. Advanced keyboard harmony.

0208. Ear Training III. Cr. 2.

Prereq: MUT 0102. Melodic dictation with first degree modulations within a conventional rhythmic context; harmonic dictation employing a grand staff with triads in all positions including all non-harmonic tones; sight singing aligned to the work done in melodic dictation; correlated work in score analysis and critical listening.

0209. Ear Training IV. Cr. 2.

Prereq: MUT 0103. Melodic dictation with second and third degree modulations within conventional and unconventional rhythmic contexts; harmonic dictation employing a grand staff with triads and seventh chords in all positions including all non-harmonic tones; sight singing aligned to the work done in melodic dictation; correlated work in score analysis and critical listening.

0210. Eighteenth Century Counterpoint I. Cr. 2.

Prereq: MUT 0201. Contrapuntal technique of J. S. Bach and his contemporaries. Two-voice structure only.

0211. Eighteenth Century Counterpoint II. Cr. 2.

Prereq: MUT 0210. Continuation of Music 0210. Three- and four-voice structures.

0212. Jazz Theory and Arranging. Cr. 2.

Prereq: MUT 0203 or equiv. A survey of the field of jazz and popular music from a theoretical aspect, with emphasis upon stylistic periods, techniques of improvisation.

0300. Orchestration I. Cr. 2.

Prereq: MUT 0203. Practical course in arranging music for orchestra, including study of transposition, arrangements from a piano score, general treatment of range, relationship, tone qualities, balance of orchestral instruments.

0301. Orchestration II. Cr. 2.

Prereq: MUT 0300. Opportunity to arrange complicated piano scores for symphony orchestra. Original compositions may be arranged. University Symphony Orchestra available for laboratory work.

0308. Ear Training V. Cr. 2.

Prereq: MUT 0201. Melodic dictation with fourth and fifth degree modulations within conventional and unconventional rhythmic contexts; harmonic dictation employing a grand staff with triads and seventh chords in all positions including all non-harmonic tones; all functional altered chords; sight singing aligned to the work done in melodic dictation; correlated work in score analysis and critical listening.

0309. Ear Training VI: Advanced Sight Singing. Cr. 2 (Max. 4).

Prereq: MUT 0209. Two-quarter sequence employing unison, two and three-part singing, including diatonic melodies, basic rhythmic patterns, simple modulations, chromatic embellishments, modal idioms, and complex structures. Additional text material taken from the song books used in K-8 of the public schools.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0310. Composition I. Cr. 2.

Prereq: MUT 0203. Introduction to creative writing. Creative properties of melodic line in relation to rhythm, tonality, cadence and form; aesthetic considerations. Writing for unaccompanied instruments.

0311. Composition II. Cr. 2.

Prereq: MUT 0310. Continuation of Music 0310. Emphasis on creative aspects of rhythm, cadence, tonal polarity, concepts of consonance and dissonance within framework of two-voice texture.

0312. Composition III. Cr. 2.

Prereq: MUT 0311. Continuation of Music 0311. Emphasis on creative aspects of larger harmonic textures in relation to melodic, rhythmic, other structural elements. Aesthetic and stylistic considerations; piano pieces, small ensemble writing.

0402. Renaissance Counterpoint. Cr. 2.

Prereq: MUT 0102. Contrapuntal practice of the fifteenth and sixteenth century European composers, excluding Palestrina.

0403. Palestrina Counterpoint. Cr. 2.

Prereq: MUT 0102. Contrapuntal technique of Giovanni Pierluigi da Palestrina.

0405. Analytic Technique I. Cr. 2.

Prereq: MUT 0201. Structural analysis of varied musical materials historically organized.

0406. Analytic Technique II. Cr. 2.

Prereq: MUT 0405. Continuation of Music 0405.

0407. Analytic Technique III. Cr. 2.

Prereq: MUT 0406. Continuation of Music 0406.

0410. Composition IV. Cr. 2.

Prereq: MUT 0312 and 0407. Creative writing in twentieth century idioms. Aesthetic, stylistic, and formal problems in composition employing contemporary techniques.

0411. Composition V. Cr. 2.

Prereq: MUT 0410. Continuation of Music 0410.

0412. Composition VI. Cr. 2.

Prereq: MUT 0411. Continuation of Music 0411.

0504. History of Music Theory. Cr. 4.

Prereq: MUT 0201 and two years of music history. Comprehensive survey from ancient Greeks to present.

0505. Advanced Orchestration I. Cr. 2.

Prereq: MUT 0301. Arranging and scoring for orchestra in all forms of ensemble structure.

0506. Advanced Orchestration II. Cr. 2.

Prereq: MUT 0505. Continuation of Music 0505.

0507. Band Arranging. Cr. 4.

Prereq: MUT 0507. (Formerly Music Education 5208.)

0508. Choral Arranging. Cr. 3-4.

Prereq: MUT 0201 or consent of instructor.

0601. Eighteenth Century Fugue. Cr. 2.

Prereq: MUT 0211. Fugal style of the eighteenth century with

particular emphasis on the "Well-Tempered Clavier" and the "Art of the Fugue" by J. S. Bach.

0607. Advanced Band Arranging. Cr. 3-4.

Prereq: MUT 0507. (Formerly Music Education 5208.)

0700. Advanced Contrapuntal Techniques. Cr. 2.

Prereq: MUT 0211. Complex eighteenth century contrapuntal techniques including invertible counterpoint.

0707. Advanced Analytic Techniques. Cr. 2.

Prereq: MUT 0407. Various analytic techniques with stress on the harmonic/contrapuntal styles of the late nineteenth and twentieth centuries.

0708. Directed Study in Theory. Cr. 2-8.

Credit assigned by adviser and instructor. Prereq: MUT 0203 or 0407 and consent of graduate officer. Individually directed study of theoretical musicology.

0710. Graduate Composition. Cr. 4-12.

Prereq: MUT 0412 or consent of instructor. Advanced creative work in all of the idioms of twentieth century musical composition.

History and Literature (MUH)

0130. Music Literature: Keyboard and Song. Cr. 4.

Not open to music majors. Folk songs, art songs, all keyboard literature (harpsichord, piano, organ).

0131. Music Literature: Symphonic and Chamber. Cr. 4.

Not open to music majors. Symphonic literature, concerto, chamber music.

0132. Music Literature: Opera and Oratorio. Cr. 4.

Not open to music majors. Opera, mass, oratorio.

0137. History of Musical Thought I. Cr. 4.

Not open to music majors. Development of musical style in Europe from the Greeks through the Baroque era; Bach and Handel.

0138. History of Musical Thought II. Cr. 4.

Not open to music majors. Development of musical style in Europe from the Classic era to the present.

0230. Church Music and Materials I. Cr. 2.

Prereq: MUA 0267 and major in organ or church music. Practical application of material used in churches of various faiths. For choir directors and organists.

0231. Church Music and Materials II. Cr. 2.

Prereq: MUH 0230. Continuation of Music 0230.

0330. Music History I. Cr. 4.

Prereq: sophomore standing. For music majors; others by consent of chairman. Ancient and medieval music from the period of primitive music to the beginning of fifteenth century.

0331. Music History II. Cr. 4.

Prereq: sophomore standing. For music majors; others by consent of chairman. Renaissance: fifteenth and sixteenth centuries from Burgundian School through Palestrina.

0332. Music History III. Cr. 4.

Prereq: sophomore standing. For music majors; others by consent of chairman. Baroque: seventeenth and eighteenth centuries, from Monteverdi through Bach and Handel.

0333. Music History IV. Cr. 4.

Prereq: sophomore standing. For music majors; others by consent of chairman. Classic music from 1750 to 1825: Haydn, Gluck, Mozart, Beethoven.

0334. Music History V. Cr. 4.

Prereq: sophomore standing. For music majors; others by consent of chairman. Romantic music from 1825 to 1910: Brahms, Tschai-kowski, Franck, Wagner.

0335. Music History VI. Cr. 4.

Prereq: sophomore standing. For music majors; others by consent of chairman. Contemporary music from 1910 to the present: tone rows, polytonality.

0336. History of Jazz to 1950. Cr. 4.

Prereq: sophomore standing. Development of jazz from its incep-tion to 1950.

0339. Masterpieces of the Musical Theatre. Cr. 4.

Prereq: sophomore standing. Repertoire of music for the theatre including musical comedy, and all forms of opera.

0436. History of Jazz: 1950 to the Present. Cr. 4.

Continuation of Music 0336.

0530. Introduction to Musicology. Cr. 4.

Prereq: four courses in music history. Various fields of musicology with investigation of research resources and methods. This course or its equivalent is a prerequisite to all graduate work.

0535. Studies in Performance Literature and Pedagogy I. Cr. 2.

Prereq: music major in an undergraduate performance curriculum. Various fields from the Baroque period to the present.

0542. History of Opera. Cr. 4.

Prereq: one year of music history. Development of opera, includ-ing principal works from visual, choreographic, literary, musical points of view.

0545. Studies in Performance Literature and Pedagogy II. Cr. 2.

Prereq: MUH 0535. Continuation of Music 0535.

0731. Studies in Medieval Music. Cr. 4.

For music majors; others by consent of instructor. Early European music from origins of Roman Chant through the "Ars Nova."

0732. Studies in Renaissance Music. Cr. 4.

For music majors; others by consent of instructor. Fifteenth and sixteenth centuries, from Burgundian School through Palestrina.

0733. Studies in Baroque Music. Cr. 4.

For music majors; others by consent of instructor. Bach and his contemporaries. Special reports; research projects.

0734. Studies in Classical Music. Cr. 4.

For music majors; others by consent of instructor. From 1750 to 1825. Special reports on music of Beethoven and his contempo-raries.

0735. Studies in Romantic Music. Cr. 4.

For music majors; others by consent of instructor. Nineteenth cen-tury. Special reports and research projects.

0736. Studies in Twentieth Century Music. Cr. 4.

For music majors; others by consent of instructor. Special reports and research projects.

0745. Studies in Performance Styles. Cr. 4-12.

Prereq: written consent of chairman. Individually directed study of performance styles.

0750. Directed Study in Music History. Cr. 2.

Prereq: consent of chairman and graduate officer. Problems in music history; areas of musicological investigation.

0850. Directed Study. Cr. 4.

Prereq: MUH 0530 and consent of graduate officer. Thesis writing for master's degree. To determine by research whether the subject matter of the thesis topic is acceptable for fulfillment of the thesis requirement.

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

Prereq: MUH 0850 or 12 credits in MUT 0710, and consent of chairman and adviser.

Applied Music (MUP)

Private Instruction

The College offers private instruction in voice and specific musical instruments. These courses are open only to music majors and require special fee cards for registration. Under-graduate students must elect eight credits, and graduate students five credits, to be eligible to elect these courses. See the *Schedule of Classes* for details regarding these special fees.

These courses offer either one or three credits. They are open for three credits only to performance majors in the Bachelor of Music curricula or the Master of Music curricula.

Five hours of instruction over ten weeks are required for one credit; ten hours of instruction over ten weeks are required for three credits.

Jury examinations are given twice a year for all students electing these courses for three credits.

The following courses are for students who wish to study voice or an instrument in a secondary capacity. They may be elected as many times as necessary to obtain the required credits in a given curriculum. The courses are open only to music or music education majors.

- 0120. Organ. Cr. 1.
- 0121. Piano. Cr. 1.
- 0122. Voice. Cr. 1.
- 0123. Stringed Instruments. Cr. 1.
- 0124. Woodwind Instruments. Cr. 1.
- 0125. Brasswind Instruments. Cr. 1.
- 0126. Percussion Instruments. Cr. 1.
- 0127. Harp. Cr. 1.
- 0128. Classic Guitar. Cr. 1.
- 0129. Free Bass Accordion. Cr. 1.

The following courses are for students who wish to study voice or an instrument in a principal capacity. Maximum election is limited to twelve quarters.

They are open only to music or music education majors, and are open for three credits only to performance majors.

- 0220. Organ. Cr. 1 or 3.
- 0221. Piano. Cr. 1 or 3.
- 0222. Voice. Cr. 1 or 3.
- 0223. Stringed Instruments. Cr. 1 or 3.
- 0224. Woodwind Instruments. Cr. 1 or 3.
- 0225. Brasswind Instruments. Cr. 1 or 3.
- 0226. Percussion Instruments. Cr. 1 or 3.
- 0227. Harp. Cr. 1 or 3.
- 0228. Classic Guitar. Cr. 1 or 3.
- 0229. Free Bass Accordion. Cr. 1 or 3.

The following courses are only for graduate students who wish to study voice or an instrument in a secondary capacity. They may be elected as many times as is necessary to obtain the required credit in a given curriculum.

They are open only to music or music education majors.

- 0620. Organ. Cr. 1.
- 0621. Piano. Cr. 1.
- 0622. Voice. Cr. 1.
- 0623. Stringed Instruments. Cr. 1.
- 0624. Woodwind Instruments. Cr. 1.
- 0625. Brasswind Instruments. Cr. 1.
- 0626. Percussion Instruments. Cr. 1.
- 0627. Harp. Cr. 1.
- 0628. Classic Guitar. Cr. 1.
- 0629. Free Bass Accordion. Cr. 1.

The following courses are for graduate students who wish to study voice or an instrument in a principal capacity. They may be elected as many times as necessary to obtain the required credit in a given curriculum.

They are open only to music or music education majors, and are open for three credits only to performance majors.

- 0720. Organ. Cr. 1 or 3.
- 0721. Piano. Cr. 1 or 3.
- 0722. Voice. Cr. 1 or 3.
- 0723. Stringed Instruments. Cr. 1 or 3.
- 0724. Woodwind Instruments. Cr. 1 or 3.
- 0725. Brasswind Instruments. Cr. 1 or 3.
- 0726. Percussion Instruments. Cr. 1 or 3.
- 0727. Harp. Cr. 1 or 3.
- 0728. Classic Guitar. Cr. 1 or 3.
- 0729. Free Bass Accordion. Cr. 1 or 3.

Applied Music (MUA)

Classroom Instruction

The college offers classroom instruction in voice and specific musical instruments to students who have such courses approved by their advisers.

All classroom instruction courses in applied music meet at regular times throughout the week in an assigned room in the Music Building. Consult the *Schedule of Classes* for details.

Harpsichord

0573. Harpsichord Class. Cr. 2 (Max. 4).

Prereq: written consent of instructor. Harpsichord techniques.

Organ

0570. 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.

Piano

0171. Piano Class I. Cr. 2.

Rudiments: scales, study of simple compositions.

0271. Piano Class II. Cr. 2.

Prereq: MUA 0171 or equiv.

0371. Piano Class III. Cr. 2.

Prereq: MUA 0271 or equiv.

0471. Piano Class IV. Cr. 2 (Max. 6).

Prereq: MUA 0371 or equiv.

Voice

0172. Voice Class I. Cr. 2.

Open to all students. Fundamentals in voice training. Correct breathing; tone placement; articulation vocalises.

0272. Voice Class II. Cr. 2.

Prereq: MUA 0172 or equiv. Voice building and repertoire; simple art songs.

0372. Voice Class III. Cr. 2.

Prereq: MUA 0272 or equiv. Voice building and repertoire; romantic to contemporary periods.

0472. Voice Class IV. Cr. 2 (Max. 6).

Prereq: MUA 0372 or equiv. Interpretative style of art song, oratorio, and opera.

Guitar

0178. Classic Guitar Class. Cr. 2 (Max. 6).

Basic posture, hand position, and tone production.

Classroom Courses and Ensembles

Instrumental Classes

0173. String Class. Cr. 2 (Max. 6).

Open only to music majors. Technics and fundamental problems in the playing and teaching of stringed instruments.

0174. Woodwind Class. Cr. 2 (Max. 6).

Open only to music majors. Technics and fundamental problems in the playing and teaching of woodwind instruments.

0175. Brasswind Class. Cr. 2 (Max. 6).

Open only to music majors. Technics and fundamental problems in the playing and teaching of brasswind instruments.

0176. Percussion Class. Cr. 2 (Max. 6).

Open only to music majors. Technics and fundamental problems in the playing and teaching of percussion instruments.

Performance Ensembles

0280. University Band. Cr. 1.

Prereq: consent of director.

0281. University Symphony Orchestra. Cr. 1.

Prereq: consent of director.

0283. Men's Glee Club. Cr. 1.

Prereq: consent of director.

0284. University Choruses. Cr. 1.

Prereq: consent of director.

0285. Chamber Singers. Cr. 1.

Prereq: consent of director.

0287. Women's Chorale. Cr. 1.

Prereq: consent of director.

0288. Chamber Music and Special Ensembles. Cr. 1.

All forms.

0290. Orchestra Literature: Sight Reading and Style. Cr. 1.

Prereq: consent of director.

0563. Opera Workshop (SPH 0563). Cr. 2 (Max. 12).

Undergrad. credit only. Prereq: consent of instructor. Re-election by music majors only with consent of adviser. Performing aspects of light and grand operas as they pertain to singers. Scenes, acts, or entire operas performed each quarter.

0788. Chamber Music. Cr. 1.

For graduate majors in strings, woodwinds, brasswinds. Public performance.

0790. Orchestra Literature: Sight Reading and Style. Cr. 1.

Prereq: consent of director. Works for small orchestra from all periods of the literature.

Other Courses

0267. Conducting Technics I. Cr. 4.

Credit only on completion of Music 0268. Prereq: MUT 0308. Rudiments of conducting; special attention to baton techniques.

0268. Conducting Technics II. Cr. 4.

Prereq: MUA 0267. Continuation of MUA 0267. Score reading and rehearsal techniques.

0569. Influence of Music on Behavior. Cr. 4.

Prereq: PSY 0198, 0317, 0318. Physiological and psychological effects of music; relation of music to health; experimental studies; related philosophical and psychological theory.

0571. Music Therapy Techniques I. Cr. 4.

Prereq: MUA 0569. Procedures in music therapy; investigation of the rise of music as a tool in treatment of mentally ill and physically handicapped; introduction to hospital organization.

0572. Music Therapy Techniques II. Cr. 4.

Prereq: MUA 0571. Continuation of Music 0571.

Music Education (MED)

0356. Directed Study. Cr. 2-9 (Max. 9).

Prereq: consent of adviser. (Formerly Music Education 3206.)

0451. Vocal Music in the Schools I. Cr. 4.

Prereq: MUT 0309. Orientation to music teaching; methods and materials in early elementary grades.

0452. Vocal Music in the Schools II. Cr. 4.

Prereq: MED 0451. Continuation of Music 0451. Emphasis on upper elementary grades.

0453. Vocal Music in the Schools III. Cr. 4.

Prereq: MED 0452. Continuation of Music 0452; organization of methods and materials in junior and senior high schools.

0454. Instrumental Music in the Schools I. Cr. 4.

Prereq: MUA 0173, 0174, 0175, 0176. Teaching techniques, materials and organization of instrumental music in elementary schools.

0455. Instrumental Music in the Schools II. Cr. 4.

Prereq: MED 0454. Teaching techniques, materials and organization of instrumental music in junior and senior high schools.

0456. Instrumental Music in the Schools III. Cr. 4.

Prereq: MED 0455. Special problems in the teaching of instrumental music.

0551. Music Literature for Elementary Classroom Teachers. Cr. 4.

(Formerly Music Education 5201.)

0553. Music Education for General Elementary School Teachers. Cr. 4.

No graduate credit for music education majors. Foundations and basic methods in music for the classroom teacher. (Formerly Music Education 5203.)

0555. Choral Technics in Secondary Schools. Cr. 3-4.

(Formerly Music Education 5205.)

0556. Secondary School Vocal Music Workshop. Cr. 3-4 (Max. 8).

Group participation in the study of class materials and teaching procedures relating to vocal music in the schools. (Formerly Music Education 5206.)

0650. Directed Study in Music Education. Cr. 1-12 (Max. 12).

Prereq: consent of adviser, supervising instructor, and graduate officer. Supervised professional study in field settings. (Formerly Music Education 6200.)

0652. Elementary School Music Workshop. Cr. 3-4.

Study of music materials in relation to other areas of instruction. (Formerly Music Education 6202.)

0653. Conducting and Operating the School Band. Cr. 3-4 (Max. 8).

Prereq: consent of instructor. (Formerly Music Education 6203.)

0654. Instrumental Music Workshop. Cr. 3-4.

Current problems, procedures and materials pertaining to development of the instrumental music program in the schools. (Formerly Music Education 6204.)

0753. Music in Secondary Schools. Cr. 3-4.

Open to all graduate students. Principles relating to the secondary school curriculum. (Formerly Music Education 7203.)

0754. Organization and Administration of Music in the Schools. Cr. 3-4.

Open to all graduate students. (Formerly Music Education 7204.)

0755. General Music in the Schools. Cr. 3-4.

Materials and aural technics related to listening experiences. (Formerly Music Education 7205.)

0756. Contemporary Trends in Music Education. Cr. 3-4.

Open to all graduate students. Role of music in the school. Philosophy, trends and issues in music education on all grade levels. (Formerly Music Education 7201.)

0757. Introductory Master's Seminar. Cr. 3-4.

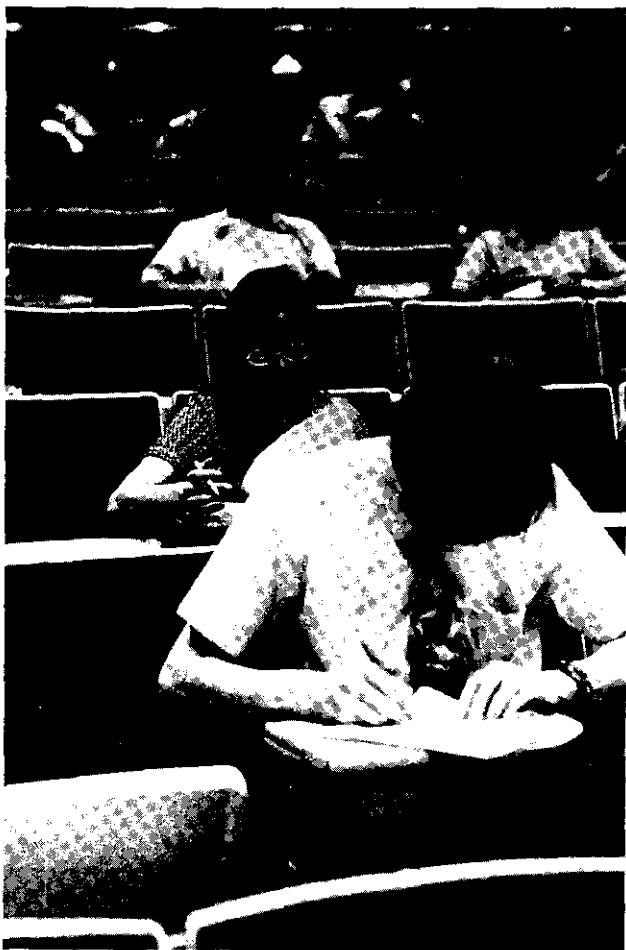
Prereq: consent of adviser and instructor. (Formerly Music Education 7207.)

0758. Advanced Rehearsal Technics. Cr. 3-4.

Prereq: MUA 0269 or equiv. Structural analysis relating to rehearsal technics and the interpretation of performance materials. Review and clarification of manual baton technics and styles. (Formerly Music Education 7208.)

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

Prereq: consent of chairman and adviser.



NEAR EASTERN LANGUAGES AND LITERATURES

Office: 437 Speech and Foreign Languages Building

Chairman: Jacob Lassner

Professor

Jacob Lassner, Ph.D.

Assistant Professors

Tikvah S. Frymer, M.A., Aleya A. Rouchdy, Ph.D., Ivan Starr, M.A.

Adjunct Professor

Max Kapustin, Ph.D.

DEGREE PROGRAMS

Bachelor of Arts—with a major in Hebrew or Arabic

Bachelor of Arts — with a major in Near Eastern languages

Bachelor of Arts — with a major in Near Eastern studies

The department aims to acquaint the student with languages and civilizations of the Near East with an emphasis on the classical traditions. In addition to reading texts in the original language, the student may elect courses from a wide range of offerings for which no previous language study is required. A student who wishes to major in the department should plan his program with the departmental adviser as soon as possible after entering the University. Each program is arranged individually to combine the most varied advantages consistent with the student's interests and purposes.

BACHELOR OF ARTS

With a Major in Hebrew

Major Requirements — A major in Hebrew consists of thirty-six credits beyond Hebrew 0103. In addition, the student is required to take sixteen credits in Hebrew culture including the Biblical and post-Biblical periods.

With a Major in Near Eastern Languages

Major Requirements — A major in Near Eastern languages consists of: (a) twenty-four credits beyond first year proficiency in a Near Eastern language (Arabic, Hebrew) and first year proficiency in a second language (Akkadian, Arabic, Aramaic, Hebrew) or (b) twelve credits beyond first year proficiency in two Near Eastern languages (Arabic, Hebrew). In addition, the student is required to take sixteen credits in

elective courses in Ancient Near East, Hebrew, or Islamic culture.

With a Major in Near Eastern Studies

Major Requirements—A major in Near Eastern Studies consists of twelve credits beyond the first year proficiency in a foreign language (Arabic, Hebrew). In addition, the student is required to take forty credits in elective courses including no less than eight credits in each of the following: Ancient Near Eastern culture, Hebrew culture, Islamic culture.

Recommended Cognate Courses—The department recommends the following: Anthropology 0529, 0530, 0533; English 0234; Geography 0541; History 0535; Philosophy 0560.

MASTER OF ARTS

With a Major in Near Eastern Languages

Plan A—Thirty-six credits in course work plus a thesis.

Plan B—Forty-five credits in course work plus an essay.

Specialization in Hebrew

Admission—The applicant must have an adequate knowledge of at least one Semitic language and some knowledge of the culture of the Near East.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements—A student specializing in Hebrew is expected to demonstrate ability in the use of Hebrew sources and some proficiency in either Aramaic or Arabic. In addition to the Hebrew courses, the student will be required to take either eight credits in Aramaic or twelve credits in Arabic. Under special circumstances, the student may be advised to elect eight credits in cognate courses from the disciplines of history, philosophy, anthropology, sociology, and political science. He is expected to write a thesis or attend a seminar where he must show his ability in using sources and in doing original research. He must also show his proficiency in a modern language. A final oral and written examination will be required to test the ability of the student in the language and culture of his area of specialization. The student's program of study must have approval of the major adviser and must include Hebrew 0782.

Specialization in Arabic

Admission—The applicant must have adequate knowledge of at least one Semitic language and some knowledge of the culture of the Near East.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements—A student specializing in Arabic is expected to demonstrate ability in the use of Arabic sources and some proficiency in either Aramaic or Hebrew. In addition to the Arabic courses, the student will be required to take either eight credits in Aramaic or twelve credits in He-

brew. Under special circumstances, the student may be advised to elect eight credits in cognate courses from the disciplines of history, philosophy, anthropology, sociology, and political science. He is expected to write a thesis or attend a seminar where he must show his ability in using sources and doing original research. He must also show a proficiency in a modern language. A final oral and written examination will be required to test the ability of the student in the language and culture of his area of specialization. The applicant's program of study must have the approval of the major adviser and must include Arabic 0601 and 0780.

COURSES OF INSTRUCTION¹

Arabic (ARB)

0101. Introduction to Classical Arabic I. Cr. 4.
Vocabulary, forms, syntax.

0102. Introduction to Classical Arabic II. Cr. 4.
Prereq: ARB 0101 or consent of instructor. Continuation of Arabic 0101.

0103. Introduction to Classical Arabic III. Cr. 4.
Prereq: ARB 0102 or consent of instructor. Intensive and extensive graded reading.

0201. Intermediate Arabic I. Cr. 4.
Prereq: ARB 0103 or consent of instructor. Readings in classical and modern prose; review of grammar.

0202. Intermediate Arabic II. Cr. 4.
Prereq: ARB 0201 or consent of instructor. Continuation of Arabic 0201.

0203. Intermediate Arabic III. Cr. 4.
Prereq: ARB 0202 or consent of instructor. Readings in classical and modern prose; review of grammar.

0390. Directed Study. Cr. 2-6 (Max. 12).
Prereq: consent of chairman. Readings; periodic consultations and reports.

0590. Directed Study. Cr. 2-6 (Max. 12).
Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and authorization by graduate officer. Readings; periodic consultations and reports.

0601. Readings in Arabic Literature. Cr. 4.
Prereq: ARB 0203 or consent of instructor. For students who have fulfilled requirements of second year Arabic. Reading of texts from representative works.

0602. Arabic Historical Texts I. Cr. 4.
Prereq: ARB 0601 or consent of instructor. Critical reading of selected historical works from the Middle Ages.

0603. Arabic Historical Texts II. Cr. 4.
Prereq: ARB 0602 or consent of instructor. Continuation of Arabic 0602.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0780. Seminar in Development of Arabic Literature. Cr. 4 (Max. 12).

Prereq: ARB 0601. Poetry and prose from fifth century A.D. to the present. Literary forms and content.

Aramaic (ARA)

0620. Biblical Aramaic. Cr. 4.

Prereq: HEB 0507 or consent of instructor. Sounds, grammar, syntax.

0621. Post-Biblical Aramaic. Cr. 4.

Prereq: consent of instructor. Readings in the Targumim of Babylonian and Palestinian origin.

Chinese (CHI)

0101. Elementary Chinese. Cr. 4.

0102. Elementary Chinese. Cr. 4.

Prereq: CHI 0101 or equiv.

0103. Elementary Chinese. Cr. 4.

Prereq: CHI 0102 or consent of instructor.

0201. Intermediate Chinese. Cr. 4.

Prereq: CHI 0103 or consent of instructor.

Hebrew (HEB)

0101. Elementary Hebrew I. Cr. 4.

Grammar, vocabulary, syntax.

0102. Elementary Hebrew II. Cr. 4.

Prereq: HEB 0101 or consent of instructor. Continuation of Hebrew 0101.

0103. Elementary Hebrew III. Cr. 4.

Prereq: HEB 0102 or consent of instructor. Reading of simple texts.

0209. Intermediate Hebrew I. Cr. 4.

Prereq: HEB 0103 or consent of instructor. Continuation of Hebrew 0103. Readings of simple Biblical, medieval, and modern Hebrew texts.

0210. Intermediate Hebrew II. Cr. 4.

Prereq: HEB 0209 or consent of instructor. Continuation of Hebrew 0209.

0211. Intermediate Hebrew III. Cr. 4.

Prereq: HEB 0210 or consent of instructor. Continuation of Hebrew 0210. Texts of post-Biblical literature; analysis of linguistic, literary, historical aspects; class work plus collateral readings.

0390. Directed Study. Cr. 2-6 (Max. 12).

Prereq: consent of chairman. Readings; periodic consultations and reports.

0500. Post-Biblical Texts. Cr. 4.

Prereq: HEB 0211 or consent of instructor. Selections of Midrashic materials. Exegetical method of the Midrash.

0503. Readings in Tannaitic Literature. Cr. 4.

Prereq: HEB 0500 or consent of instructor. Mishna, Tosephta, Halakhic Midrashim.

0507. Readings in the Bible with Medieval Commentaries. Cr. 4.

Prereq: HEB 0503 or consent of instructor. Representative selections illustrating the methodology of the classical commentaries. Their linguistic, historical and interpretative approaches.

0508. Hebrew Liturgical Texts. Cr. 4.

Prereq: HEB 0507 or consent of instructor. Based on selected readings, the history, intent and development of Hebrew prayer is explored. Influences from other religious traditions, particularly Islam.

0509. Hebrew Historical Sources (HIS 0660). Cr. 4.

Prereq: consent of instructor. Introduction to early and medieval historical texts and to historiographical material such as Ibn Daud, Ibn Yahya and Yuhasin.

0510. Readings from Medieval Philosophical Texts. Cr. 4.

Prereq: consent of instructor. The medieval systems, particularly the Kuzari and the "Guide to the Perplexed." Influences of the Greek and Arabic philosophers in the formation of Jewish philosophy. Relationships with Christian thought.

0512. Readings in Modern Hebrew Literature I. Cr. 4.

Prereq: HEB 0211 or consent of instructor. Representative nineteenth century selections.

0513. Readings in Modern Hebrew Literature II. Cr. 4.

Prereq: HEB 0512 or consent of instructor. Representative twentieth century selections.

0590. Directed Study. Cr. 2-6 (Max. 12).

Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and graduate officer. Readings; periodic consultations and reports.

0782. Seminar in Development of Hebrew Language and Literature. Cr. 4 (Max. 12).

Prereq: HEB 0503 or 0507. All stages analyzed on historical principles.

Near Eastern Studies (NE)

0200. Introduction to the Islamic Civilization of the Near East. Cr. 4.

Survey of the civilization of Near Eastern countries from the beginning of Islam until modern times: government, literature and the arts.

0201. The Bible and Ancient Mythology. Cr. 4.

The Bible and Biblical religion in the context of its antecedents in the ancient world.

0202. Women in the Near East. Cr. 4.

Women in the Near East, from Sumer through present-day Arab countries. General position of women in the area throughout history; prominent women.

0390. Directed Study. Cr. 2-6 (Max. 12).

Prereq: consent of chairman. Readings; periodic consultations and reports.

0503. (A H 0503) Great Cities of the Near East. Cr. 4.

Illustrated survey of the great cities of the Near East from the birth of urban civilization in Mesopotamia to modern times. Urban centers of the ancient Near East: Mecca, Baghdad, Cairo, Jerusalem, and others.

0590. Directed Study. Cr. 2-6 (Max. 12).

Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and graduate officer. Readings; periodic consultations and reports.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

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

Prereq: consent of adviser.

Knowledge of the original language is not required for the following courses. No credit allowed toward fulfillment of undergraduate Foreign Language Group Requirement.

0380. Survey of Jewish Thought I. Cr. 4.

From earliest times to Moses Mendelsohn.

0381. Survey of Jewish Thought II. Cr. 4.

Prereq: N E 0380. Jewish thought from Moses Mendelsohn to the present.

0500. Introduction to the Civilization of Southwest Asia. Cr. 4.

Prereq: junior standing or consent of instructor. Ancient times to the present.

0513. (A H 0543) Survey of Jewish Art. Cr. 4.

Jewish participation in the arts from antiquity to the present.

0533. (ANT 0533) Middle Eastern Societies. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Stratification, ethnic and religious groups; peasant, nomadic and urban sectors and their interrelationships; family, marriage and sex roles; nationalism, colonialism and revolutionary movements.

0551. History of Civilization of the Ancient Near East I (HIS 0648). Cr. 4.

History, law and religion based on source readings in translation from the beginnings to the Hellenistic period.

0552. History of Civilization of the Ancient Near East II (HIS 0649). Cr. 4.

Prereq: N E 0551 or consent of instructor. Continuation of Near Eastern Studies 0551.

0554. History and Civilization of Ancient Israel I (HIS 0650). Cr. 4.

Prereq: N E 0551 or consent of instructor. Historical background of biblical history and religion as illustrated by modern literary and archeological discoveries from the beginnings to the Hellenistic period.

0555. History and Civilization of Ancient Israel II (HIS 0651). Cr. 4.

Prereq: N E 0554 or consent of instructor. Continuation of Near Eastern Studies 0554.

0565. History of the Jews I (HIS 0652). Cr. 4.

From the Hellenistic period to the seventh century.

0566. History of the Jews II (HIS 0653). Cr. 4.

Prereq: N E 0565 or consent of instructor. The middle ages and modern times.

0567. History of the Arabs I (HIS 0654). Cr. 4.

Prereq: junior standing or consent of instructor. Muhammad and the rise of Islam.

0568. History of the Arabs II (HIS 0656). Cr. 4.

Prereq: N E 0567 or consent of instructor. Origins of the Islamic state.

0569. History of the Arabs III (HIS 0659). Cr. 4.

Prereq: N E 0568 or consent of instructor. Formation of the Islamic Empire under the Umayyads and the Abbasids.

0575. Ancient Near Eastern Classics in English Translation. Cr. 4.

Representative works from the major literary traditions of the ancient Near East.

0577. Civilization of the Medieval Near East I (HIS 0657). Cr. 4.

Islamic historiography and scholarship, Islamic art.

0578. Civilization of the Medieval Near East II (HIS 0658). Cr. 4.

Continuation of Near Eastern Studies 0577. The Islamic city and urban institutions and the role of minorities in the social and economic life.

0585. Arabic Literature in Translation. Cr. 4.

Survey of Arabic literature: pre-Islamic, medieval and modern.

0595. History and Development of Semitic Languages. Cr. 4.

Non-technical approach to the history and distribution of Western Semitic languages in the Near East area; overview of the languages and the main cultural groups of the area.

PHILOSOPHY

Office: 303 Library Court

Chairman: Barbara M. Humphries

Professors

Richard B. Angell, Ph.D., Cornelius L. Golightly, Ph.D.,
Raymond Hoekstra, Ph.D. (Emeritus)

Associate Professors

Barbara M. Humphries, Ph.D., Gail C. Stine, Ph.D., William
D. Stine, Ph.D.

Assistant Professors

Richard B. Hall, Ph.D., Lawrence B. Lombard, B.A., Bruce
N. Morton, Ph.D., Lawrence Powers, B.A., Robert J. Titiev,
Ph.D.

Adjunct Professor

Alvin C. Plantinga, Ph.D.

DEGREE PROGRAMS

Bachelor of Arts — with a major in philosophy

Master of Arts — with a major in philosophy

Doctor of Philosophy — with a major in philosophy

Courses in the Department of Philosophy are designed for four types of service:

1. By their emphasis on clear and cogent thought, by a consideration of the interrelations of fact and value, by training in logic and the methodology of inquiry, by a study and analysis of major philosophical outlooks, they contribute to the liberal education of any student, whatever his predominant interest.
2. They supply cognate courses to students majoring in other departments who wish to study their major subject in its wider philosophical implications.
3. They give departmental majors a wide and intensive training in philosophy. The major appeals to those who wish to take graduate work in philosophy and to those who wish a broad background from which to study and understand the emergence and conflict of ideas in relation to contemporary problems.
4. They supply a relevant major for students who plan a career in such fields as the law or the ministry.

BACHELOR OF ARTS

Students who are planning to major in philosophy or who simply wish advice or consultation about course offerings should see the director of undergraduate studies in the phi-

losophy department. The department offers a regular major and an honors major.

Major Requirements — A candidate for the regular major must complete a minimum of thirty-six credits in philosophy, including: Philosophy 0302, 0360, either 0320 or both 0220 and 0230; at least one course from each of the following two Philosophy groups: (a) 0330, 0332, 0370, 0524, 0530, 0571; (b) 0323, 0340, 0350, 0355, 0357, 0523, 0550, 0553, 0557, 0560; and twenty additional credits above 0500.

Note: Students should consult the instructor before choosing any 0500 level course rather than an 0300 level course, when meeting requirements (a) and (b). 0500 level courses taken to complete (a) and (b) may be used to fulfill the needed twenty additional credits above 0500, though the thirty-six credit minimum must be met.

Honors Program for Majors — Admission will be determined on the basis of the student's over-all record. For admission the student would normally be required to have: (1) a minimum honor point average of 3.3; (2) credit in at least three philosophy courses; (3) a B or better average in philosophy courses previously taken.

A candidate for the honors degree must complete requirements for the regular major, plus 0487, 0488, 0489, to be taken in the fall, winter, and spring quarters respectively during the candidate's senior year, as well as one interdisciplinary seminar from the honors program.

To remain in the honors program, the student must maintain a B average in philosophy courses. To receive an Honors degree the candidate must (a) complete the course requirement, (b) take and pass comprehensive examinations in philosophy during the winter quarter of his senior year, and (c) write an Honors essay of sufficiently high quality, on a topic chosen by the candidate and his instructor in Philosophy 0487. If at any point the student fails to maintain honors standards, his credits will automatically count toward the regular major. Students interested in becoming candidates for the Honors Degree in Philosophy, should consult the director of undergraduate studies in the philosophy department as soon as possible.

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — (If approved by adviser) — Forty-five credits in course work plus an essay.

Plan C — (Only for doctoral candidates. Consult department chairman) — Forty-eight credits in course work.

Admission requires approval by the chairman of the department. Prerequisites must include courses in logic, values, 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 eighteen credits have been earned.

Degree Requirements — A final oral examination is required, except under Plan C.

DOCTOR OF PHILOSOPHY

Admission to the doctoral program is open to superior full-time students. Applicants may obtain from the departmental graduate officer information concerning departmental requirements for admission, assistantships and scholarships.

Degree Requirements—A preliminary qualifying examination at the end of the first year of graduate work may be required at the discretion of the department. A final qualifying examination is mandatory. It will consist of a written part and an oral part. It must be taken before registering for the eighth quarter of full-time study (excluding summers but including fellowship and assistantship quarters) toward the Ph.D. degree (i.e., normally in the spring quarter of the student's second year of study); if failed the first time, it must be taken again the following year. Normally, no student may attempt the qualifying examination more than twice.

The language requirements, as specified in the Graduate Division regulations, must be met prior to the final qualifying examination.

The candidate's doctoral committee must approve his doctoral dissertation prior to an oral presentation open to all interested faculty and students.

COURSES OF INSTRUCTION¹ (PHI)

0201. Introduction to Philosophy. Cr. 4.

Since the course content varies somewhat with the lecturer, the student is advised to consult the reading lists, or Liberal Arts advisers, prior to registration.

0202. Honors: Introduction to Philosophy. Cr. 5.

Restricted to students in Liberal Arts Honors Program. Intensive study of some of the basic problems of philosophy.

0220. Logic I. Cr. 3.

The logic of propositions: truth-tables, validity of arguments, equivalence, tautologies, formal proofs.

0222. Honors Introduction to Logic. (4,1). Cr. 5.

Restricted to students in Liberal Arts Honors Program. The logic of propositions and the general logic of predicates and relations; the logic of identity.

0230. Logic II. Cr. 3.

Prereq: PHI 0220 or consent of instructor. The logic of predicates and relations, identity and descriptions, and a brief introduction to set theory.

0302. Greek Philosophy. Cr. 4.

Prereq: sophomore standing. Theories about the universe in pre-Socratics, Plato, Aristotle and others.

020. Intermediate Logic. Cr. 4.

The logic of propositions, the general logic of predicates and relations, identity and descriptions, and a brief introduction to set theory. Accelerated course covering the material of both Philosophy 0220 and 0230.

¹Page 536 for interpretation of numbering system, signs and variations.

0323. Introduction to Philosophy of Science. Cr. 4.

Prereq: PHI 0201, or science major, or consent of instructor. Explanation in natural or social sciences, the nature of scientific systems, and related topics.

0330. Problems in Social and Political Philosophy. Cr. 4.

Prereq: sophomore standing or one course in philosophy or consent of instructor. Readings from classical political philosophers, Plato to Marx.

0332. Ethics. Cr. 4.

Prereq: sophomore standing or one course in philosophy or consent of instructor. Theories concerning the nature of the good life.

0340. Philosophy of Religion. Cr. 4.

Prereq: PHI 0201 or consent of instructor. Philosophical problems of religious belief: the meaning and justifiability of beliefs concerning the existence and nature of God.

0350. Problems in Theory of Knowledge. Cr. 4.

Prereq: PHI 0201 or consent of instructor. Theories concerning the nature of human knowledge, its scope and limits, its relation to sense-perception, to memory and related problems.

0355. Problems in Metaphysics. Cr. 4.

Prereq: PHI 0201 or consent of instructor.

0357. Philosophy of Language. Cr. 4.

Prereq: one course in philosophy. Meaning, vagueness, truth, metaphor, translation.

0360. Studies in Modern Philosophy: Descartes to Hume. Cr. 4.

Prereq: PHI 0201 or consent of instructor. Theories of knowledge and reality in the seventeenth and eighteenth centuries.

0370. Aesthetics. Cr. 4.

Philosophy of beauty and art.

0487. Honors Directed Reading. Cr. 4.

Prereq: philosophy honors candidate.

0488. Honors Directed Reading and Examination. Cr. 4.

Prereq: philosophy honors candidate.

0489. Honors Pro-Seminar. Cr. 6.

Prereq: PHI 0487.

0515. Existentialism. Cr. 4.

Prereq: PHI 0350 or 0355 or consent of instructor. Kierkegaard, Nietzsche, Heidegger, Sartre. Offered in alternate years.

0520. Logic III. Cr. 4.

Prereq. or coreq: PHI 0230 or 0320 or consent of instructor. Modal logic, the logic of imperatives and deontic logic, epistemic logic; the combined logic of quantifiers, modalities, and descriptions; logic of intentions.

0523. Philosophy of Science. Cr. 4.

Prereq: PHI 0323 or consent of instructor. Topics or authors to be announced in Schedule of Classes.

0524. Social and Political Philosophy. Cr. 4 (Max. 12).

Prereq: PHI 0330 or consent of instructor. Topics to be announced in Schedule of Classes.

0527. Philosophy of Law. Cr. 4.

Prereq: PHI 0201 or consent of instructor. Problems concerning the nature of a legal system, the concept of a valid law, the justification of the judicial decision.

0528. History of Ethics I. Cr. 4.

Prereq: an 0300 level philosophy course or consent of instructor. Plato, Aristotle, Hobbes, Butler.

0529. History of Ethics II. Cr. 4 (Max. 8).

Prereq: an 0300 level philosophy course or consent of instructor. Hume, Bentham, Mill, Kant. Topics to be announced in Schedule of Classes.

0530. Contemporary Ethical Theories I. Cr. 4.

Prereq: an 0300 level philosophy course or consent of instructor. Detailed examination of ethical theories from 1900-1930: Moore, Prichard, Ross, Perry, Dewey, ethical intuitionism and ethical naturalism.

0531. Contemporary Ethical Theories II. Cr. 4.

Prereq: PHI 0530 or consent of instructor. Ethical theories since 1930: Ayer, Stevenson, Hare, Sartre, Toulmin, Lewis; varieties of noncognitivism, "good reasons" theories, Lewis' pragmatic "a priorism."

0535. Logical Systems I (MAT 0535). Cr. 4.

Prereq: PHI 0230 or 0320 or MAT 0510 or 0542 or consent of instructor. Metaresults concerning formal systems for sentential logic and first-order predicate logic; soundness, completeness; independence of axioms.

0539. Logical Systems II (MAT 0539). Cr. 4.

Prereq: PHI 0535 or consent of instructor. Godel's incompleteness theorem for elementary arithmetic; Tarski's theorem; Church's theorem.

0540. Logical Systems III. Cr. 4-12 (Max. 12).

Prereq: PHI 0535 or consent of instructor. Formal axiomatic treatment of special subject matters such as set theory, algebraic structures, and physical theories. Topics to be announced in Schedule of Classes.

0541. Plato. Cr. 4.

Prereq: PHI 0302 or 0350 or 0355 or 0360 or consent of instructor. Selected readings. Offered alternate years.

0542. Aristotle. Cr. 4.

Prereq: PHI 0302 or 0350 or 0355 or 0360 or consent of instructor. Selected readings. Offered alternate years.

0543. Medieval Philosophy. Cr. 4-12.

Prereq: PHI 0350 or 0355 or 0360 or consent of instructor. Major philosophers such as Augustine, Aquinas, Scotus, Ockam. Topics to be announced in Schedule of Classes.

0544. Continental Rationalism. Cr. 4-12.

Prereq: PHI 0350 or 0355 or 0360 or consent of instructor. Descartes, Spinoza, Leibniz. Topics to be announced in Schedule of Classes.

0545. British Empiricism. Cr. 4-12.

Prereq: PHI 0350 or 0355 or 0360 or consent of instructor. Locke, Berkeley, Hume. Topics to be announced in Schedule of Classes.

0546. Kant. Cr. 4.

Prereq: PHI 0350 or 0355 or 0360 or consent of instructor.

0548. Pragmatism. Cr. 4.

Prereq: PHI 0350, 0355 or 0360, or consent of instructor. Theories of meaning, truth, and knowledge in writings of C. S. Peirce, W. James, J. Dewey, and C. I. Lewis or other pragmatists.

0549. History of Philosophy. Cr. 4 (Max. 12).

Prereq: consent of instructor. Topics to be announced in Schedule of Classes.

0550. Metaphysics. Cr. 4.

Prereq: PHI 0350 or 0355 or consent of instructor. Selected problems.

0553. Epistemology. Cr. 4.

Prereq: PHI 0350 or 0355 or 0360. Problems in the theory of knowledge.

0555. Philosophy of Mind. Cr. 4.

Prereq: PHI 0350 or 0355 or consent of instructor. Nature and metaphysical status of mental entities. Offered in alternate years.

0557. Philosophy of Language. Cr. 4.

Prereq: PHI 0230 or 0320 and one other philosophy course, or consent of instructor. Philosophical problems concerning meaning, truth, and the nature of language.

0560. Philosophy of Religion. Cr. 4.

Prereq: PHI 0340 and 0350 or 0355 or 0360 or consent of instructor. Selected issues in contemporary philosophical theology.

0563. Twentieth Century Analytic Philosophy I. Cr. 4 (Max. 8).

Prereq: PHI 0350 or 0355 or consent of instructor. Topics chosen from major works, figures and movements in analytic philosophy before World War I, such as Russell, Moore, Frege.

0564. Twentieth Century Analytic Philosophy II. Cr. 4 (Max. 8).

Prereq: PHI 0563 or consent of instructor. Philosophies of logical atomism and logical positivism. Readings from Russell, or Wittgenstein, or Carnap, or other representatives of this period.

0565. Twentieth Century Analytic Philosophy III. Cr. 4 (Max. 8).

Prereq: PHI 0564 or consent of instructor. Present analytic philosophy. Readings from later writings of Wittgenstein, Austin, or other representatives of this period.

0571. Analysis and Criticism of the Arts. Cr. 4.

Prereq: PHI 0201 or consent of instructor. Art analysis, problems of style, criteria for criticism and evaluation.

0575. Philosophy of Logic. Cr. 4-12.

Prereq: PHI 0230 or 0320; and 0350 or 0355 or consent of instructor. The nature of ontological categories, conceptual schemes, or interpretations of logical formalisms. Topics to be announced in Schedule of Classes.

0580. Systematic Philosophy. Cr. 4 (Max. 12).

Prereq: consent of instructor. Topics to be announced in Schedule of Classes.

0590. Directed Study. Cr. 4-12 (Max. 12).

Undergrad prereq: consent of chairman; grad. prereq: consent chairman and graduate officer.

0618. (MAT 0618) Recursive Function Theory. Cr. 4.

Prereq: PHI 0535 or MAT 0510 and 0542 or consent of instructor. Computable operators; primitive recursive functions; recur

enumerable sets; recursive and partially recursive functions; numbered sets (Godel, Kleene, and Post numberings); algorithms and Turing machines; unsolvable problems and degrees of unsolvability.

0779. Seminar in Philosophy of Language. Cr. 6 (Max. 18).
Prereq: PHI 0320 or equiv. or consent of instructor.

0780. Seminar in Legal Philosophy. Cr. 6 (Max. 18).
Prereq: PHI 0527 or consent of instructor. Selected topics.

0781. Seminar in History of Philosophy. Cr. 3-6 (Max. 18).
Study of a philosopher or period.

0782. Seminar in Philosophy of Religion. Cr. 6 (Max. 18).
Prereq: PHI 0560 or consent of instructor.

0783. Seminar in Aesthetics. Cr. 6 (Max. 12).
Prereq: PHI 0370 or consent of instructor.

0784. Seminar in Ethics. Cr. 6 (Max. 18).
Prereq: PHI 0530 or consent of instructor.

0785. Seminar in Epistemology. Cr. 6 (Max. 18).
Prereq: PHI 0544 or 0545 or 0550 or 0557.

0786. Seminar in Metaphysics. Cr. 6 (Max. 18).
Prereq: PHI 0550 or consent of instructor.

0787. Seminar in Logic. Cr. 6 (Max. 18).
Prereq: PHI 0535 or 0557.

0788. Seminar in Political Philosophy. Cr. 6 (Max. 18).

0789. Seminar in Philosophy of Science. Cr. 6 (Max. 18).
Prereq: PHI 0523.

0799. Master's Essay Direction. Cr. 3-4.
Prereq: consent of adviser.

**0899. Master's Thesis Research and Direction. Cr. 2-12
(12 required).**
Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.
Credits to be arranged. Prereq: consent of doctoral adviser.

PHYSICAL SCIENCE

Office: 135 Physics Research Building

Director: George B. Beard

Staff: Selected from the Departments of Chemistry, Geology, and Physics.

UNDERGRADUATE COURSES

The undergraduate courses in physical science are designed for non-science majors in the College of Liberal Arts and in other colleges within the University who desire some understanding of astronomy, physics, chemistry, and geology within a limit of fourteen credits. The scientific method of thought is emphasized and a foundation laid for an intelligent interest in modern science and its applications.

Credit in Physical Science 0191, 0192, and 0193 may be counted toward fulfillment of the Natural Science Group Requirement.

COURSES OF INSTRUCTION¹ (PHS)

0191. Physical Science: Physics and Astronomy. Cr. 5.
Principles; illustrations of the application of scientific methods; background material for further study of astronomy, chemistry, geology. Lectures, quizzes, home experiments.

0192. Physical Science: Chemistry (CHM 0100). Cr. 4.
For non-science majors. Chemical facts and theories; a brief analysis of their consequences in history, politics, economics, education.

**0193. Physical Science: Principles of Geology I (GEL 0101).
(4,3). Cr. 5.**
Introduction to rocks and minerals; igneous and volcanic geology; work of running water, glaciers and ground water; geologic time; geophysics and structure of the earth's crust and interior; oceanography. One-day field trip.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

PHYSICS AND ASTRONOMY

Office: 135 Physics Research Building

Chairman: George B. Beard

Professors

George B. Beard, Ph.D., Henry V. Bohn, Ph.D., Katherine M. Chamberlain, Ph.D. (Emeritus), Harry H. Denman, Ph.D., Lawrence D. Favro, Ph.D., Suraj N. Gupta, Ph.D. (Distinguished), Yeong Wook Kim, Ph.D., Vaden W. Miles, Ph.D. (Emeritus), Leonard O. Roellig, Ph.D., Alvin M. Saperstein, Ph.D., Martin Stearns, Ph.D., Melbourne G. Stewart, Ph.D.

Associate Professors

William P. Beres, Ph.D., Adriaan M. de Graaf, Ph.D., William E. Dorenbusch, Ph.D., David M. Fradkin, Ph.D., Daniel R. Gustafson, Ph.D., Howard C. Hoyt, Ph.D. (Emeritus), Patrick F. Kenealy, Ph.D., Pao-Kuang Kuo, Ph.D., Hannibal H. Madden, Ph.D., William B. Rolnick, Ph.D., Richard M. Spector, Ph.D., Robert L. Thomas, Ph.D., Marshall A. Wheatley, Ph.D. (Emeritus)

Assistant Professors

Vincent D. Cannella, Ph.D., Juei-Teng Chen, Ph.D., Kenneth J. Duff, Ph.D., Gerald L. Dunifer, Ph.D., Rondo N. Jeffery, Ph.D., Walter E. Kauppila, Ph.D., Cyrus Moazed, Ph.D., Thomas J. Moran, Ph.D., Talbert S. Stein, Ph.D.

Instructors

Narendra K. Batra, Ph.D., Michael I. Green, Ph.D., Ronald J. Kashuba, Ph.D., Jerome C. Lawson, Ph.D., Roger A. Verhelst, Ph.D.

DEGREE PROGRAMS

Bachelor of Arts — with a major in physics

Bachelor of Science in Physics

Master of Arts — with a major in physics

Master of Science — with a major in physics

Doctor of Philosophy — with a major in physics

The Department of Physics offers courses for students of science and engineering, as well as for those who seek a knowledge of physics as part of their cultural background. It is possible for a good student to complete the requirements for a major in physics and at the same time complete requirements for a major in mathematics. It is also possible for a physics major to earn a secondary school teaching certificate by electing credits in the College of Education under a combined curriculum.

Physics Colloquium — The department colloquium normally is held Thursday afternoons. Graduate students are expected to attend the colloquium. It constitutes an integral part of

the departmental graduate program. Advanced undergraduates are invited to attend.

BACHELOR OF SCIENCE IN PHYSICS

Special Curriculum

The Bachelor of Science program in physics is designed for those students who are preparing themselves for graduate study in physics, as well as for those who wish to apply their training in filling positions in government and industrial laboratories.

Requirements:

1. The regular College Group Requirements except the foreign language. (A foreign language is desirable but not required. French, German, or Russian are recommended).

2. (a) Elementary Mathematics Sequence
Mathematics 0211, 0212, 0213, 0214, 0215.

(b) Intermediate Mathematics Courses
Mathematics 0519, 0520, 0521, 0522.

It is recommended that Mathematics 0523 and 0524 be taken, particularly by those who wish to go on to graduate work.

3. Chemistry 0107, 0108.

4. Physics

(a) Elementary Sequence
Physics 0217, 0218, 0219, 0220.

(b) Intermediate and Advanced Courses
Physics 0520, 0521, 0562, 0563, 0662, 0663, 0685, 0686, 0689.

It is also strongly recommended that students, particularly those who expect to go on to graduate work, take Physics 0535, 0536, 0651, 0652.

Advanced Placement

Students should seek to obtain advanced placement in English and foreign languages. Information on advanced placement examinations may be obtained from the Liberal Arts Advising Office.

Suggested Course Sequence

Freshman Year		
<i>Fall Quarter</i>	<i>Winter Quarter</i>	<i>Spring Quarter</i>
CHM 0107 ¹ ... 4	CHM 0108 ... 4	PHY 0218 ... 5
MAT 0211 ² ... 4	MAT 0212 ... 4	MAT 0213 ... 4
ENG 0150 ... 4	PHY 0217 ... 5	English Elective 4
Soc. Sci. Elective ... 4	Soc. Sci. Elective ... 4	Soc. Sci. Elective ... 4
16	17	1

¹ For footnotes see next page.

Sophomore Year

<i>Fall Quarter</i>	<i>Winter Quarter</i>	<i>Spring Quarter</i>
PHY 0219 .. 5	PHY 0220 .. 5	Humanities
MAT 0214 .. 4	MAT 0215 .. 4	Elective .. 4
Soc. Sci.	Humanities	MAT 0519 .. 4
Elective .. 4	Elective .. 4	PHY 0562 .. 4
Language	Language	Language
Elective .. 4	Elective .. 4	Elective .. 4
17	17	16

Junior Year

<i>Fall Quarter</i>	<i>Winter Quarter</i>	<i>Spring Quarter</i>
PHY 0520 .. 4	PHY 0521 .. 4	PHY 0536 ^a .. 4
PHY 0563 .. 4	PHY 0535 ^a .. 4	PHY 0662 .. 3
MAT 0520 .. 3	MAT 0521 .. 3	MAT 0522 .. 4
Language	Humanities	Humanities
Elective .. 4	Elective .. 4	Elective .. 4
15	15	15

Senior Year

<i>Fall Quarter</i>	<i>Winter Quarter</i>	<i>Spring Quarter</i>
PHY 0663 .. 3	PHY 0651 ^a .. 3	PHY 0652 ^a .. 3
PHY 0685 .. 3	PHY 0686 .. 3	PHY 0689 .. 4
MAT 0523 ^a .. 4	MAT 0524 ^a .. 4	Elective 3
Bio. Sci.	Elective 3	Elective 3
Elective .. 4	13	13
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 community colleges, but whose course background in physics and mathematics does not dovetail in content, level, or timing well enough to permit full completion of the Bachelor of Science degree requirements in a reasonable time;
- b) students who wish to pursue a general course of education in the sciences with physics as an area of concentration. Those who undertake such a program are sometimes interested in the study of physics as an integrated part of a broad cultural background;
- c) students who decide relatively late in their college career (for example, during the sophomore year) that they wish to major in physics.

It should be emphasized that completion of the Bachelor of Arts program instead of the Bachelor of Science program does not preclude later graduate work in physics. In most

¹ Completion of one year of high school chemistry including laboratory and a satisfactory score on qualifying examination in high school algebra is required. Students enrolling in Chemistry 0107 will be given an Advisory Placement Examination. Superior performance on the examination will allow students the option of enrolling in Chemistry 0108 immediately.

² A satisfactory score on the Mathematics Qualifying Examination or Mathematics 0180 is required.

^a Not required for the B.S. in physics, but strongly recommended.

cases it will mean that the student will spend part or all of his first year in graduate school making up deficiencies in his physics and mathematics background. Generally speaking such deficiencies may be determined by consulting the Suggested Course Sequence of the Bachelor of Science degree in physics, above.

Requirements:

1. The regular College Group Requirements including the language requirement (French, German, or Russian is recommended).
2. (a) Elementary Mathematics Sequence
Mathematics 0211, 0212, 0213, 0214, 0215.
(b) Intermediate Mathematics Courses
Mathematics 0519, 0520, 0521.
3. Chemistry 0107, 0108.
4. Physics 0217, 0218, 0219, 0220. A student may present credits in Physics 0213, 0214, 0215, or equivalent, in lieu of Physics 0217, 0218, 0219 with the consent of the chairman.
5. At least twenty additional credits in physics at the 0500 or 0600 level including 0520 and 0521.

MASTER OF ARTS

Admission — Prerequisite preparation should include a minimum of general college physics with laboratory (equivalent to 0217, 0218, 0219, and 0220), twenty credits in the intermediate physics courses (equivalent to 0520, 0521, 0562, 0563, 0662, 0663, 0685, 0686, 0689); mathematics through 0522 and Chemistry 0108 or equivalent courses.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements are as follows:

1. Forty-five credits in course work plus an essay.
2. At either graduate or undergraduate level, Physics 0520, 0521, 0535, 0536, 0562, 0563, 0651, 0652, 0662, 0663, 0685, 0686, or 0689 or equivalent courses.
3. Either Mathematics 0523, and one elective on the 0500 level or above
or
Mathematics 0510, 0511, 0512.
4. Eight credits in physics on the 0700 level or above, exclusive of 0790, 0799, 0899.
5. A departmental final oral examination is required of all candidates.

MASTER OF SCIENCE

Degree Requirements are as follows:

1. Thirty-six credits in course work plus a thesis.
2. The other requirements are the same as requirements (2) through (5) in the Master of Arts program.

DOCTOR OF PHILOSOPHY

Degree Requirements — To be awarded the Ph.D. degree, a student must demonstrate proficiency in the fields listed below:

- a. Mechanics and Dynamics
- b. Electromagnetic Theory
- c. Quantum Physics
- d. Thermodynamics and Statistical Mechanics
- e. Mathematics

The following courses or their equivalent will be required of all candidates for the Ph.D. degree in physics: Physics 0705, 0710-0711-0712, 0720-0721, 0740-0741-0742, 0750-0751, 0765-0766-0767.

In addition, students specializing in experimental or theoretical solid state physics will be required to take Physics 0755-0756-0757.

Students specializing in experimental or theoretical nuclear physics will be required to take Physics 0882-0883.

Students specializing in any branch of theoretical physics will be required to take either Physics 0743-0744 or Physics 0885-0886.

On petition of the student and his thesis adviser, the Departmental Graduate Committee may waive any of the above course requirements.

The student must also complete a minor program, the requirements of which will be set down by the Departmental Graduate Committee, but usually will consist of not less than three courses open only to graduate students. Finally he must submit an acceptable dissertation.

Reading Proficiency Examinations — The student must pass a reading proficiency examination in one foreign language (German, Russian, or French). The examination must be passed before the final qualifying examination is taken.

Final Qualifying Examination — The final qualifying examination will be given after the student has completed approximately two years of graduate course work. Its purpose is to investigate the student's knowledge of physics, and his capacity for creative thought. The examination will be part oral and part written. The student must submit a *Plan of Work* prior to the time he presents himself for this examination.

The student is referred to the graduate information sections of this bulletin beginning on pages 16 and 198 for additional information pertaining to doctoral study.

FINANCIAL AIDS

Graduate teaching appointments are available to qualified entering graduate students. A graduate course load of approximately ten credits per quarter is usual with such an appointment. Normally about six to eight contact hours of quiz (recitation) sections or laboratory instruction sections per week are arranged.

Research appointments, involving no teaching duties, are also available to qualified students. Stipends for these appointments are comparable to the teaching appointment stipends. Research undertaken while holding such an appointment may form the basis of the master's or doctoral thesis.

In addition, various government fellowships, University fellowships, and a Knoller Physics-Chemistry Fellowship are available within the department. Students applying for either teaching or research appointments are automatically considered for these. Application blanks and specific information concerning the above appointments may be obtained by writing to the chairman.

COURSES OF INSTRUCTION¹

Physics (PHY)

The parenthetical notation at the end of the course description indicates the most probable quarters in which the course will be offered. (Su=Summer, W=Winter, Sp=Spring, F=Fall)

0104. Modern Physics and Today's Society. Cr. 4.

Prereq: PHS 0191 or high school physics. The special theory of relativity, wave and particle duality, concepts of probability, the uncertainty principle, and quantum theory and the influence of modern physical theories on our society and philosophy. (Sp)

0106. Environmental Physics. Cr. 3.

Prereq: high-school algebra or equiv. Constraints imposed on the actions of individuals and societies by the known and probable laws of physical science; possibilities offered by these laws; predictions of environmental results of human actions.

0213. General Physics. (4,2). Cr. 4.

Prereq: high school algebra and trigonometry. For general Liberal Arts students and also for students preparing for medicine, dentistry, pharmacy. Open to other interested students. Mechanics and heat. (FWSpSu)

0214. General Physics. (4,2). Cr. 4.

Prereq: PHY 0213. Continuation of Physics 0213. Electricity, magnetism, and light. (FWSpSu)

0215. General Physics. (4,2). Cr. 4.

Prereq: PHY 0214. Continuation of Physics 0214. Modern physics. (FWSpSu)

0217. General Physics. (5,2). Cr. 4-5.

Prereq: MAT 0211; coreq: MAT 0212. For students specializing in physics, chemistry, mathematics, or engineering. Kinematics, relativity, dynamics, energy and linear momentum, rotational dynamics, angular momentum, applications to planetary and atomic systems. (FWSpSu)

0218. General Physics. (5,2). Cr. 4-5.

Prereq: PHY 0217, MAT 0212. Continuation of Physics 0217. Charge quantization, stationary charges and associated fields, current elements, magnetic fields, Hall effect, magnetic induction effects, electromagnetic waves and wave properties, interference of waves. (FWSpSu)

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0219. General Physics. (5,2). Cr. 4-5.

Prereq: PHY 0218. Continuation of Physics 0218. Reflection and refraction, diffraction, photoelectric and Compton effects, atomic physics, introduction to quantum mechanics, nuclear physics, elementary particles. (FWSpSu)

0220. General Physics. (5,2). Cr. 4-5.

Prereq: PHY 0218; coreq: MAT 0214; or consent of instructor. Kinetic theory of gases and thermal phenomena, statistical mechanics, properties and models of the solid state, electric conduction in gases, plasmas. (FWSpSu)

0390. Directed Study. Cr. 1-3 (Max. 6).

Prereq: written consent of adviser and instructor. Primarily for physics majors who wish to continue in a field beyond material covered in regular courses, or who wish to study material not covered in regular courses, including certain research participation.

0502. Contemporary Topics. Cr. 4.

Prereq: PHY 0215 or 0219. Areas of modern physics providing a continuation of Physics 0215 or 0219. Nuclear physics: radioactive decay, ionizing radiation, nuclear power. Solid state physics: electron properties of metals, semiconducting devices. Biophysics: application of nuclear and solid state physics techniques to the study of biological systems.

0506. Introductory Physical Science for Pre-Service Teachers. (2,4). Cr. 4.

No physics major credit. Prereq: PHS 0191 or equiv. Physical science background required for the employment of the Introductory Physical Science (IPS) secondary school curriculum.

0520. Theoretical Mechanics I. Cr. 4.

Prereq: PHY 0215 or 0219, MAT 0215; coreq: MAT 0519. Particles, harmonic motion, orthogonal coordinates, systems of particles, conservation laws, rigid body motion. (F)

0521. Theoretical Mechanics II. Cr. 4.

Prereq: PHY 0520 and MAT 0519. Statics, gravitation, accelerated frames of reference, LaGrange's and Hamilton's equations. (W)

0535. Light I. (3,3). Cr. 4.

Prereq: PHY 0215 or 0219, MAT 0214; coreq: MAT 0215. Intermediate course in geometrical and physical optics. Wave motion, interference, diffraction, refraction, dispersion, polarization. (W)

0536. Light II. (3,3). Cr. 4.

Prereq: PHY 0535. Continuation of Physics 0535. (Sp)

0562. Electrical Measurements I. (2,4). Cr. 4.

Prereq: PHY 0215 or 0219 or consent of instructor. A.C. and D.C. circuits, electronic circuits using vacuum tubes and semiconductor devices with emphasis on circuits of special interest to physicists such as A.C. and D.C. amplifiers and pulse circuitry. (Sp)

0563. Electrical Measurements II. (2,4). Cr. 4.

Prereq: PHY 0562. Continuation of Physics 0562. (F)

0570. Basic Electronics. (3,3). Cr. 4.

Prereq: PHY 0214. Not open to physics majors. Basic electronics for biologists, chemists, high school science teachers. D.C. and A.C. circuits, vacuum tube circuits, transistor circuits, amplifiers, oscillators, applications to measurement and instrumentation. (WSp)

†0602. Modern Physics I: For High School Teachers. Cr. 3 (Max. 9).

No credit toward graduate degree in physics; students should confer with adviser concerning credit in the College of Education. Prereq: consent of instructor. Ordinarily open to those in-service teachers of secondary schools who are under National Science Foundation; others must have written consent of chairman. Elementary principles of modern atomic and nuclear physics, particularly as applied to the PSSC high school physics program.

0606. Introductory Physical Science for Junior High School Teachers. (2,2). Cr. 3-6.

Prereq: consent of instructor. Ordinarily open only to secondary school in-service teachers under National Science Foundation. The physical science background required for the employment of the Introductory Physical Science Program.

0651. Thermodynamics and Kinetic Theory I. Cr. 3.

Prereq: PHY 0215 or 0220. Development and critical analysis of concepts of thermodynamics, first and second laws of thermodynamics, thermodynamic equilibrium, Nernst's postulate. Illustrative applications to problems of physical interest. Kinetic theory of gases and introduction to classical statistical mechanics. (W)

0652. Thermodynamics and Kinetic Theory II. Cr. 3.

Prereq: PHY 0651. Continuation of Physics 0651. (Sp)

0662. Electricity and Magnetism I. Cr. 3.

Prereq: PHY 0214 or 0218, MAT 0520. Physical and mathematical treatment of electrostatics, steady and quasi-steady currents. Maxwell's equations. (Sp)

0663. Electricity and Magnetism II. Cr. 3.

Prereq: PHY 0662. Continuation of Physics 0662. (F)

0685. Modern Physics I. Cr. 3.

Prereq: PHY 0219, 0521, and MAT 0519 or consent of instructor. Special theory of relativity, black body radiation, specific heats, spectra and atomic structure, x-rays, introduction of quantum mechanics. (F)

0686. Modern Physics II. Cr. 3.

Prereq: PHY 0685. Continuation of Physics 0685. (W)

0689. Nuclear Physics. Cr. 4.

Prereq: PHY 0686. Properties of nuclei; natural and artificial radioactivity, particle accelerators and detectors, induced nuclear reactions, elementary particles. (Sp)

0705. Elementary Solid State Physics. Cr. 4.

Prereq: PHY 0686. Contemporary solid state physics dealing primarily with experiments in this area and with modern descriptive models of solids.

0706. Survey of Elementary Particle Physics. Cr. 4.

Prereq: PHY 0689. Experimental aspects; relativistic kinematics; quantum mechanical scattering, reaction, and decay theory; historical survey; strong and weak interactions; classification of particles.

0710. Methods of Theoretical Physics I. Cr. 3.

Prereq: MAT 0522 or equiv. or consent of instructor. Techniques for solution of physical problems.

0711. Methods of Theoretical Physics II. Cr. 3.

Prereq: PHY 0710. Continuation of Physics 0710.

0712. Methods of Theoretical Physics III. Cr. 3.

Prereq: PHY 0711. Continuation of Physics 0711.

0720. Advanced Mechanics I. Cr. 3.

Prereq: PHY 0521 or consent of instructor. Variational principles, central forces, transformation theory, Hamilton-Jacobi theory, small oscillations, rigid body motion.

0721. Advanced Mechanics II. Cr. 3.

Prereq: PHY 0720. Continuation of Physics 0720.

0725. Relativity. Cr. 3.

Prereq: PHY 0663. Postulates of the special theory of relativity formulated and applied to development of relativistic mechanics and relativistic electrodynamics. Basic ideas of the general theory of relativity, with an introduction to mathematical formulation of the general theory.

0740. Quantum Mechanics I. Cr. 4.

Prereq: PHY 0686 and PHY 0720 or consent of instructor. Schrodinger wave equation, its meaning and solutions, as applied to simple physical and chemical problems. Perturbation theory. Theory of atomic collisions, matrix mechanics, transformation theory, angular momentum and spin, theory of measurement.

0741. Quantum Mechanics II. Cr. 4.

Prereq: PHY 0740. Continuation of Physics 0740.

0742. Quantum Mechanics III. Cr. 4.

Prereq: PHY 0741. Continuation of Physics 0741.

0743. Relativistic Quantum Mechanics I. Cr. 4.

Prereq: PHY 0742. Specialized problems using relativistic wave equations and introductions to field theory.

0744. Relativistic Quantum Mechanics II. Cr. 4.

Prereq: PHY 0743. Continuation of Physics 0743.

0750. Statistical Mechanics I. Cr. 3.

Prereq: PHY 0652; 0740 or consent of instructor. Classical and quantum statistical mechanics and applications.

0751. Statistical Mechanics II. Cr. 3.

Prereq: PHY 0750. Continuation of Physics 0750.

0755. Solid State Physics I. Cr. 3.

Prereq: PHY 0741; coreq: PHY 0742 or consent of instructor. Crystal structure, elastic constants, introduction to band theory, semiconductors, magnetic properties of materials, optical properties of solids.

0756. Solid State Physics II. Cr. 3.

Prereq: PHY 0755. Continuation of Physics 0755.

0757. Solid State Physics III. Cr. 3.

Prereq: PHY 0756. Continuation of Physics 0756.

0765. Electromagnetic Theory I. Cr. 3.

Prereq: PHY 0663, MAT 0522, or consent of instructor. Microscopic and macroscopic Maxwell's equations, special relativity, LaGrangian and Hamiltonian formulation of EM theory, energy-momentum tensor, conservation laws, radiation, scattering, applications.

0766. Electromagnetic Theory II. Cr. 3.

Prereq: PHY 0765. Continuation of Physics 0765.

0767. Electromagnetic Theory III. Cr. 3.

Prereq: PHY 0766. Continuation of Physics 0766.

0790. Directed Study in Physics. Cr. 1-4 (Max. 9).

Prereq: written consent of adviser, instructor, chairman of graduate studies committee, and graduate officer must be obtained prior to registration. Application forms available in department office. Primarily for graduate students in physics who wish to continue in a field beyond material covered in regular courses or who wish to study material not covered in regular courses.

0795. Colloquium. Cr. 1.

Offered for S and U grades only. To be elected every quarter by all graduate physics students. Lectures given by visitors, graduate staff and advanced graduate students.

0796. Research in Physics. Cr. 1-12 (Max. 20).

Prereq: consent of adviser, written consent of chairman of graduate studies committee.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0855. Solid State Physics IV. Cr. 3.

Prereq: PHY 0742 and 0757. Advanced band theory and applications, electrical and thermal conductivity, superconductivity, current problems of interest.

0882. Nuclear Physics I. Cr. 3.

Prereq. or coreq: PHY 0742. Selected topics: study of the two-nucleon problem, formal theory of scattering with applications to elastic and inelastic scattering phenomena, beta-decay.

0883. Nuclear Physics II. Cr. 3.

Prereq: PHY 0882. Continuation of Physics 0882. Nuclear shell models, strange particle interactions, meson-theoretical foundations of nuclear interactions.

0885. Quantum Theory of Fields I. Cr. 3.

Prereq: PHY 0742. General principles. Quantization of radiation and electron fields and their interaction. Quantization of meson fields, interaction of mesons, nucleons and photons.

0886. Quantum Theory of Fields II. Cr. 3.

Prereq: PHY 0885. Interaction representation and the scattering operator. Calculations of matrix elements and renormalization, calculation of scattering cross sections, lifetimes, bound-state problems.

0890. Special Topics. Cr. 1-4 (Max. 18).

More than one section may be elected in a quarter. Prereq: consent of instructor, adviser, and chairman of graduate studies committee. Topics and prerequisites for each section to be announced in Schedule of Classes.

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

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

Astronomy (AST)

0201. Descriptive Astronomy: The Solar System. Cr. 4.

Historical development; Kepler's and Newton's laws; the earth; tides; the moon as revealed by the Apollo space shots; light, telescopes; x-ray, infrared, ultraviolet, and radio astronomy; asteroids; meteors; comets; formation of the solar system; life on other worlds. Only a minimal knowledge of high school mathematics is needed.

0202. Descriptive Astronomy: Stellar Systems. Cr. 4.

Prereq: AST 0201. Motion of the stars, stellar spectra; binary stars; the sun; composition and evolution of stars, interstellar medium; galaxies; cosmology.

0510. Selected Topics in Intermediate Astronomy. Cr. 3.

Prereq: AST 0202 or PHY 0215 or 0219. Review of the necessary elementary physics and astronomy; selected topics such as stellar evolution, stellar motions, galactic astronomy, quasars, pulsars; cosmology and origins of the universe.



POLITICAL SCIENCE

Office: 856 Mackenzie Hall

Chairman: Charles J. Parrish

Academic Services Officer: Charlene A. Shaw

Professors

Edward L. Cushman, B.A., LL.D., Louis L. Friedland, Ph.D., Wesley L. Gould, Ph.D., Donald S. Hecock, Ph.D. (Emeritus), Allen A. Hyman, Ph.D., Max Mark, J.U.D., Charles J. Parrish, Ph.D., Maurice M. Ramsey, Ph.D. (Emeritus), Murray B. Seidler, Ph.D., Charles W. Shull, Ph.D. (Emeritus), Carl O. Smith, Ph.D., C. Dale Vinyard, Ph.D., Maurice Waters, Ph.D.

Associate Professors

Donald A. Calkins, M.A., J.D., Pi-chao Chen, Ph.D., Theodore B. Fleming, Jr., Ph.D., Itzhak I. Galnur, D.P.A. (Visiting), Ray E. Johnston, Ph.D., Clifford L. Kaufman, Ph.D., Burton Levy, Ph.D., Robert A. Lothian, Jr., M.P.A., Robert I. Mendelsohn, Ph.D., Robert W. Miller, Ph.D., Alfred M. Pelham, M.A. (Emeritus), Henry J. Pratt, Ph.D., Leonard A. Stitelman, Ph.D.

Assistant Professors

Philip R. Abbott, Ph.D., Merrill Case, M.A. (Emeritus), Mary-Jane Clarke, M.A. (Visiting), James C. Dick, Ph.D., Normand G. Gomolak, Sr., M.A., Barbara Greenberg, Ph.D., Saadia R. Greenberg, Ph.D., James A. Jarvis, Ph.D., Bryan D. Jones, Ph.D., Liao Kuang-sheng, M.A. (Visiting)

Adjunct Professor of Police Administration

John F. Nichols, B.S.

DEGREE PROGRAMS

Bachelor of Arts — with a major in political science

Bachelor of Science in Law Enforcement

Master of Arts — with a major in political science

Master of Public Administration

Doctor of Philosophy in Political Science

The Department of Political Science contributes to the objectives of the College of Liberal Arts by its concern for the increasingly vital role of politics and government in the modern world. This is done through analyses of the processes for the formulation and administration of public policy, domestic and foreign, and through cultivating in students an awareness of the opportunities and obligations of citizenship at local, state, and national levels.

The field of political science is of special importance to students whose career goals include:

1. Professions likely to involve participation in public affairs, including law, engineering, public health, social welfare, and education.

2. Administrative or executive positions in government — local, state, or federal.

3. Teaching of political and social science at the secondary, junior college, and university levels.

4. Positions in the diplomatic, foreign, and overseas programs of the U. S. Government, and of large private concerns doing business abroad.

5. Leadership and executive roles in citizens' organizations, political parties, economic and social interest groups, municipal research bureaus, and voluntary health and welfare organizations.

6. Positions associated with mass communications, such as radio, television, and newspapers, where basic understanding of public affairs and governmental policies and organization is required for accurate reporting and analysis.

7. Positions in private enterprise where knowledge of governmental processes is essential, such as in taxation, industrial relations, legislative liaison, and public relations.

BACHELOR OF ARTS

Major Requirements — The political science major must complete Political Science 0101 (Introduction to American Government) and a minimum of thirty-six additional credits in the Department. Twenty-four of these credits must be earned in courses at the 0500 or 0600 levels. In addition, the major should take Political Science 0306 before taking any 0500 level courses. The listing of courses by fields given below is intended to assist the student in planning his program, but no particular distribution of courses across fields is required. Twenty-four resident credits in political science are required.

The major in political science is also required to complete twelve credits in cognate social science work. The cognate courses are to be chosen from courses offered in anthropology, economics, geography, history, philosophy, psychology, and sociology.

Because of the increasing importance of quantitative methods in present-day social science and social policy, majors are strongly urged to complete one course in statistics, preferably Political Science 0564.

BACHELOR OF SCIENCE IN LAW ENFORCEMENT

The purpose of this curriculum is to provide an understanding of law enforcement in a framework of general education. It is assumed that an understanding of the foundations on which the social order rests, as well as knowledge of modern law enforcement, will improve the effectiveness of law enforcement officers and administrative personnel.

The degree is awarded upon completion of 180 credits in the program recommended. Course work leading to the degree is distributed as follows:

	<i>credits</i>
English	8-12
Humanities	16
Physical Science*	4-5
Law Enforcement	52
Psychology*	17
Social Sciences	36
Speech	4
General Electives	35-40

The law enforcement program is designed for persons who have had police experience and students who desire to enter the field of criminal justice. Practical field experience is desirable and may be arranged with the adviser's assistance, although it is not required for the degree. For additional information contact the director of the program, Louis L. Friedland, Professor of Political Science.

MASTER OF ARTS

Plan A or Plan B

Admission — Applicants for this degree should consult the graduate adviser of the department. A strong undergraduate performance is a prerequisite and substantial undergraduate preparation in the social sciences is recommended. Applicants must take the aptitude section of the Graduate Record Examination and have the results sent to the department.

Further information on this and other graduate requirements and programs is contained in the department's pamphlet *Policies and Procedures Governing Graduate Students in Political Science*, available from the department on request.

Candidacy must be established by the time twenty-four credits have been earned. An official *Plan of Work* must be filed by that time.

Degree Requirements — Under Plan A, thirty-six credits in graduate courses, including at least twenty-eight credits in political science, and twelve credits of thesis is required.

Under Plan B, forty-four credits in graduate courses, including at least thirty-two credits in political science, plus four credits for the essay is required.

For either plan, Political Science 0564 (Statistics) or its equivalent and 0727 are required. The student is expected to distribute his course work among three fields (one of which may be outside political science) as filed in his *Plan of Work*. Of the courses taken, all students shall complete sixteen credits at or above the 0700 level. Moreover, the student's program should include at least sixteen additional credits at the 0600 level or higher. A written, comprehensive examination in the major field and a final, oral examination on the essay or thesis is required.

* Refer to college group requirements to make certain that the proper laboratory course is included.

MASTER OF PUBLIC ADMINISTRATION

Plan A or Plan B

In this degree program, graduate study in the organization and administration of government, directed field training, and research are designed to prepare students for service in governmental and quasi-public agencies.

Admission — Applicants for this degree should consult the graduate adviser of the department. Strong undergraduate social sciences preparation is recommended. Additional undergraduate course work may be specified where such preparation is inadequate. Applicants must take the aptitude section of the Graduate Record Examination and have the results sent to the department. Applications are due July 15, November 15, February 15 and May 15 for the quarters following.

Candidacy — Candidacy must be established by the time twenty-four credits have been earned. An official *Plan of Work* must be filed by that time. Field work may be required under competent supervision in a governmental or quasi-public agency.

The preparation of a thesis or essay of substantial character and excellence is required. A written, comprehensive examination in public administration and a final oral examination is required, covering thesis or essay.

The student is required to earn a minimum of forty-eight credits for this degree, including a minimum of twenty credits in the field of public management. Political Science 0564 (Statistics) or its equivalent and 0727 are required. The student is required to present two minor areas, one of which may be outside political science. The requirement as to the level of courses is the same as for the regular M.A. degree (see above).

Criminal Justice Administration — A program of graduate study leading to a Master of Public Administration with specialization in the area of Criminal Justice Administration is available. This program is intended to prepare students for professional employment, teaching, and research in the operational agencies in the field of the administration of justice. Under this plan, the program requires forty-four graduate credits plus a four-credit essay. The adviser for the specialization is Professor Louis Friedland.

Gerontology — A Master of Public Administration degree with a specialization in Gerontology is offered by the department. The adviser for this specialization is Professor Leonard Stitelman.

DOCTOR OF PHILOSOPHY

Admission to the doctoral program is open only to a limited number of superior students. Those interested are urged to secure the pamphlet *Policies and Procedures Governing Graduate Students in Political Science* by writing to the department, and to review the regulations concerning graduate study in the Graduate Division section of this bulletin.

All students are required to take the Graduate Record Examination. All applications for admission to the doctoral program in political science must have the approval of the

departmental graduate committee. Applications are considered once a year for admission for the fall quarter. Applications for admission and financial aid are due by February 15. The Ph.D. is a scholarly degree, indicating not merely superior knowledge of political science but also intellectual initiative and an ability to design and carry out independent research. Students in their pre-candidacy stage will be judged on the basis of these attributes as well as on their grade-point performance. Possession of a master's degree does not automatically warrant admission to doctoral study.

Requirements — The doctoral applicant must complete written and oral final qualifying examinations in three political science fields and one minor field.

Admission to candidacy for the doctor's degree will usually require at least two years of full-time graduate study beyond the bachelor's degree. It is granted upon fulfillment of the following requirements:

1. Completion of departmental and Graduate Division residence and course requirements, including Political Science 0727 and 0826;
2. Filing an approved *Plan of Work* with the Graduate Division;
3. Completion of language and statistics requirements (Political Science 0564 and 0664 or their equivalents);
4. Completion of a preliminary qualifying examination;
5. Completion of the final qualifying examination (written and oral).

The Doctoral Dissertation — The doctoral candidate is required to submit a doctoral dissertation on a topic satisfactory to his Faculty Advisory Committee, designed to test his proficiency in political science analysis, his capacity for independent and creative research, and his ability to perfect and follow through on an appropriate research design.

Assistantships — Teaching and research assistantships in the Department of Political Science may be available to qualified students. Inquiries and applications should be addressed to the graduate adviser.

Fields — The following is a list of the fields in which the Department of Political Science offers coursework, along with the advanced undergraduate and graduate courses which compose the fields:

American Government and Public Policy: 0512, 0513, 0516, 0517, 0521, 0522, 0523, 0540, 0607, 0703, 0704, 0715, 0725, 0729, 0804.

Comparative Politics: 0502, 0503, 0504, 0505, 0506, 0507, 0508, 0509, 0510, 0535, 0631, 0672, 0674, 0701, 0706, 0707, 0709, 0810.

International Relations: 0582, 0583, 0587, 0671, 0683, 0687, 0781, 0782, 0783, 0787, 0881, 0882, 0883.

Political Processes and Behavior: 0511, 0519, 0533, 0564, 0577, 0579, 0605, 0607, 0664, 0666, 0714, 0715, 0716, 0725, 0764, 0770.

Political Theory: 0561, 0565, 0566, 0567, 0569, 0761, 0762, 0769, 0826, 0865.

Public Administration: 0520, 0524, 0526, 0527, 0529, 0533, 0563, 0603, 0607, 0620, 0631, 0649, 0702, 0715, 0722, 0723, 0724, 0729, 0733, 0734, 0737, 0738, 0771, 0835.

Public Law: 0540, 0541, 0542, 0547, 0583, 0645, 0646, 0649, 0740, 0743, 0845.

Urban and Metropolitan Politics: 0551, 0552, 0563, 0650, 0733, 0734, 0747, 0770, 0771, 0772, 0850.

COURSES OF INSTRUCTION¹ (P S)

Introductory Courses

0101. Introduction to American Government. Cr. 4.

Processes, structure, role, and functions of federal, state, and local government in the United States.

0103. Introduction to American Politics. Cr. 5.

Political processes and functions in the United States; federal, state, and local government structures.

0201. The Political Process in the Urban Setting. Cr. 4.

Prereq: P S 0101 or consent of instructor. Political and administrative processes against the economic and sociological background of the urban environment.

0208. Contemporary Political Ideologies. Cr. 4.

Prereq: P S 0101 or consent of instructor. Comparison of ideologies, political institutions, and economic systems. Democracy vs. authoritarianism; open vs. closed societies. Capitalism, socialism, communism contrasted.

0209. Introduction to Comparative Politics. Cr. 4.

Prereq: P S 0101. Principles of comparative political study. Comparison of constitutional systems, political cultures, institutional arrangements. Political development.

0281. World Politics. Cr. 4.

Prereq: P S 0101 or consent of instructor. Character of international politics; behavior of states; struggle for power, quest for peace.

0304. Introduction to Political Analysis. Cr. 4.

No credit after Political Science 0660. Prereq: P S 0101. Aims and objectives of political analysis; the major theoretical approaches employed in analysis; its assumptions and limitations.

0306. Political Analysis Laboratory. (2,2). Cr. 4.

No credit after Political Science 0206. Prereq: P S 0101. Required of majors. Major techniques and tools used for gathering and analyzing political data; laboratory experience in the application of these techniques.

0330. Administrative Practice. Cr. 2-4.

Prereq: consent of chairman. Discussion of work training experience with faculty and practitioners; integration of work experience with academic course work.

0401. Current Issues in American Politics. Cr. 2.

Not for major credit. American election and party issues and processes.

0402. Current Issues in American Foreign Policy. Cr. 2.

Not for major credit. Crucial issues of current foreign policy.

Advanced Undergraduate Courses

0501. Government and Politics of Canada. Cr. 4.

Introduction to the Canadian political process.

0502. Government and Politics of France and Italy. Cr. 4.

The political culture, socialization processes and functions of the two systems.

0503. Government and Politics of the United Kingdom. Cr. 4.

The British system within its foundational and dynamic framework: society, institutions, political processes.

0504. Governments and Politics of the Two Germanys: East and West. Cr. 4.

Political, social, and economic foundations of the two German states; the divergence and convergence.

0505. Government and Politics of the Soviet Union. Cr. 4.

Social, economic and politico-administrative institutions of the Soviet Union. Soviet Union in world affairs.

0506. Government and Politics of Eastern Europe. Cr. 4.

Background of original Soviet domination, impact of polycentrism, political institutions of representative East European countries.

0507. Government and Politics of the Near and Middle East. Cr. 4.

Political forces, governmental institutions, social and economic problems, strategic significance of selected countries.

0508. Government and Politics of East Asia. Cr. 4.

Development of modern governmental institutions and processes in China, Japan, India, other East Asian areas.

0509. Government and Politics of Latin America. Cr. 4.

Principal Central and South American countries.

0510. Government and Politics of Contemporary Africa. Cr. 4.

Movements of nationalism and independence; relationships of traditional political systems, economic and social change, national integration; especially Sub-Saharan Africa.

0511. Public Opinion and the Political Process (SOC 0511) (U P 0535). Cr. 4.

Prereq: P S 0306 or consent of instructor. The role of public opinion in the political system. Investigation of the factors important in the formation of political opinions; assessment of the consequences of the opinions of mass and specialized publics for the political decision-making process.

0512. Political Parties and Elections. Cr. 4.

Prereq: P S 0101. The development, structure, and function of American political parties; their electoral and governmental roles; comparisons with other party systems.

0513. The Legislative Process. Cr. 4.

Prereq: P S 0101. The functions, structure, and procedures of American legislative bodies with special attention to Congress; comparison with foreign legislative institutions and groups.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0516. American Political Reform Movements. Cr. 4.

Prereq: P S 0101. Organized labor, socialism, communism, liberalism, and the Negro revolution, in terms of historical backgrounds, leadership, impact on the larger society, contemporary strengths and weaknesses, and prospects.

0517. State and Local Government. Cr. 4.

Prereq: P S 0101. Structure, institutions and processes, stressing governmental relations.

0519. Survey Research Methods. Cr. 2-4.

Prereq: P S 0306. Theory and uses of sample surveys, sampling, questionnaire construction, interviewing, coding, data analysis.

0520. Introduction to Public Administration (U P 0585). Cr. 4.

Prereq: P S 0101 or consent of instructor. Governmental structure and administrative organization. Concepts and techniques of public management. Impact on modern society.

0521. Michigan Politics. Cr. 4.

Prereq: P S 0101 or consent of instructor. Recent political developments; role and organization of political parties; influence and workings of interest groups; relationships to political activity in Midwest and in Nation.

0522. Interest Groups and the Political Process. Cr. 4.

Prereq: P S 0101 or consent of instructor. Structure, techniques, and internal politics of interest groups, their roles in policy making and relationships with other groups, such as political parties, legislative bodies, and administrative agencies. (Formerly Political Science 0622).

0523. The American Chief Executive. Cr. 4.

Prereq: P S 0101 or consent of instructor. Distinctive roles of the elective chief executive—President, governor, mayor—compared and contrasted with appointive executives and European counterparts. Impact of executive leadership on parties, policy, public opinion, bureaucracy. Institutionalization of the executive.

0524. Public Personnel Administration. Cr. 4.

Prereq: P S 0520 or consent of instructor. Recruitment, testing, classification, compensation, promotions, training, employee relations.

0526. Public Financial Administration. Cr. 4.

Prereq: P S 0520 or consent of instructor. Fiscal organization, revenue structures, intergovernmental relations, revenue sharing, program planning, budgeting.

0527. Automation in Public Management. Cr. 4.

Prereq: P S 0520 or consent of instructor. Policy and administrative problems associated with automatic data processing in public agencies.

0529. Employee Relations in the Public Service. Cr. 3-4.

Prereq: P S 0520 or consent of instructor. Growth and development of employee organizations in federal, state, and local governments. The right to representation of their own choosing, to engage in collective bargaining and negotiations with public employers in the same manner as employees in private industry.

0533. Bureaucracy, Public Policy, and Power Structure (U P 0545). Cr. 4.

Prereq: P S 0101 or consent of instructor. Theory and development of modern governmental bureaucracy; its role in development of public policy. Cooptation and constituency building; role of bureaucracy as part of the total power structure.

0535. Politics of Modern China. Cr. 4.

An examination of the decline and collapse of the traditional socio-political order; causes and consequences of the emergence of the Communist regime; comparison with other Third World nations.

0540. American Legal Systems and Processes (U P 0595). Cr. 4.

Prereq: P S 0101. Legal institutions, processes and doctrines; their relation to the formulation of public policy and solution of social problems.

0541. Constitutional Law. Cr. 4.

Prereq: P S 0540 or consent of instructor. Principles of American constitutional government. Origins and nature of judicial review. Separation of powers. Federal-state and inter-state relations.

0542. Freedom and Constitutional Government. Cr. 4.

Prereq: P S 0540 or consent of instructor. Government and personal liberty. Problems of due process, civil liberties, regulation of economic and social activities.

0547. Administrative Law. Cr. 4.

Prereq: P S 0540 or consent of instructor. Legal foundations of administrative powers and processes. Legal restraints on administration of regulatory functions.

0551. Theories of Urban Politics. Cr. 4.

Review and evaluation of theories of urban politics.

0552. Analysis of Urban Political Systems (U P 0555). Cr. 4.

Prereq: P S 0201 or consent of instructor. Alternative interpretations of forces and factors shaping metropolitan growth. Interaction of community groups, power structure, intergovernmental relations.

0561. Origins of Western Political Thought. Cr. 4.

Prereq: P S 0101 or consent of instructor. Study of Plato, Aristotle and other founders of political philosophy; with emphasis on the concepts of justice and resistance.

0562. Modern Political Thought. Cr. 4 (Max. 8).

Prereq: P S 0101 or consent of instructor. Political thought from Machiavelli to the present.

0563. Program Planning, Evaluation, and Budgeting (I E 0565) (S W 0870) (U P 0565). Cr. 4 (Max. 4 for L.A. students; others max. 12).

Prereq: consent of instructor. Specific applications to urban programs in education, health, housing and police services.

0564. Statistical Analysis in Political Science I. Cr. 4.

Prereq: P S 0101 and consent of instructor. Use of descriptive statistics in political science and public administration. Introduction to probability, statistical inference, and the test of hypotheses; applications of these procedures to the study of politics.

0565. Political Theory in the Twentieth Century. Cr. 4.

Prereq: P S 0101 or consent of instructor. Major views of twentieth century political reality, their sources and implications; principal ideas of contemporary political philosophy and political science.

0566. Marxian and Communist Thought. Cr. 4.

Prereq: P S 0101 or consent of instructor. Review, evaluation, and analysis of historic and operational communist thought and action systems in USSR, China, and other countries.

0567. (HIS 0583) Development of East Asian Political Thought. Cr. 4.

Chinese and Japanese political philosophies from Confucianism to contemporary thought.

0569. American Political Thought. Cr. 4.

Prereq: P S 0101. From 1620 to date. Distinctive American contributions to Western political thought; emphasis on relevance to contemporary democratic theory.

0577. Psychology of Political Leadership (PSY 0566). Cr. 4.

Prereq: P S 0306 or consent of instructor. Nature and theories of leadership; identification of leaders; kinds of political leaders; leadership behavior, style, and effectiveness; motivational factors in political leadership.

0579. Women and Politics. Cr. 4.

Prereq: P S 0101. Investigation of the role of women in political life.

0582. International Organizations and Administration. Cr. 4.

Prereq: P S 0281 or consent of instructor. Theories of international organizations, analysis of assumptions, goals; creation of theoretical model. United Nations.

0583. International Law. Cr. 4.

Prereq: P S 0281 or consent of instructor. Relationship between international law and politics; historical survey of the schools of law; areas of agreement and disagreement on principles of law.

0587. Decision Processes in American Foreign Policy. Cr. 4.

Prereq: P S 0281 or consent of instructor. Administration; forces and factors at work in shaping policy.

0603. Organization Effectiveness: Meaning and Measurement. Cr. 4.

Prereq: P S 0520 or consent of instructor. Problems, procedures and indicators used to assess organization performance.

0605. The Political Process and the Afro-American. Cr. 4.

Prereq: consent of instructor. The central characteristics of the American political process; the socio-cultural-political characteristics of Afro-Americans as a group within the American power system; the capacities of the political process to resolve conflicts.

0607. Public Policies and Their Politics. Cr. 4.

Prereq: P S 0101. Analysis of policy development and implementation in a selected area.

0611. Evaluation in Criminal Justice Programs. Cr. 4.

Prereq: 12 credits in criminal justice or administration of justice. Theoretical and practical criteria necessary to facilitate the evaluation of criminal justice projects.

0612. Practical and Theoretical Criteria of Establishing In-Service Training. Cr. 4.

Prereq: 12 credits in criminal justice or administration of justice. Theoretical and practical criteria necessary to facilitate the establishment of in-service training concepts in the criminal justice program.

0615. Voting Behavior. Cr. 4.

Prereq: P S 0306 or consent of instructor. Examination of the causes and consequences of the voting decision; methods of studying electoral behavior. (Formerly Political Science 0515.)

0620. Theory of Organization. Cr. 4.

Prereq: P S 0520 or consent of instructor. Alternative interpreta-

tions of organizational behavior: structural-functional analysis, decision theory, institutional and historical analysis.

0630. Administrative Decision Making (U P 0635). Cr. 4.

Prereq: P S 0520 or consent of instructor. Theories and processes of decision making to isolate factors shaping decisions. Use of simulation; case studies.

0631. Comparative Public Administration. Cr. 4.

Administrative systems of selected nations. Relationship of national culture to administrative organization and behavior.

0645. Comparative Judicial Politics. Cr. 4.

Conceptual distinction between law, judicial structure, and process. Structural and functional analysis of courts and variations.

0646. American Judicial Politics. Cr. 4.

Structure and process of United States courts. Describes and analyzes interaction of all levels of courts with politics.

0649. Politics and Local Justice. Cr. 4.

Description and analysis of the operation of local legal systems and their interaction with political structures.

0650. Problems in Urban-Metropolitan Government. (U P 0652). Cr. 4 (Max. 8).

Prereq: P S 0201 or consent of instructor. Current problems.

0664. Statistical Analysis in Political Science II. Cr. 4.

Prereq: P S 0564 or equiv. Modern statistical theory applied to the analysis of politics, with particular emphasis on multiple regression and correlation and the analysis of variance.

0666. (PSY 0666) Political Psychology. Cr. 4.

Prereq: P S 0306 and two other courses in political science; or consent of instructor. Cognitive and emotional factors — loyalty, aggression, anxiety, leadership, propaganda — as they affect domestic and international politics. Biographies and public opinion data.

0671. Systems Analysis of International Relations. Cr. 4.

International relations through the use of general systems theory and appropriate techniques of systems analysis.

0672. Politics of Environmental Crisis and Population Growth. Cr. 4.

Examination of the political consequences of two great modern challenges: environmental crisis in the developed Western World and population growth in the underdeveloped Third World.

0674. Politics of Developing Areas. Cr. 4.

Political processes in underdeveloped and emerging nations; forces shaping political decisions; evolution of political institutions.

0683. International Conflict and Its Resolution. Cr. 4.

Types of international conflict and such methods of resolution as negotiation, mediation and other third party procedures.

0687. Soviet Foreign Policy. Cr. 4.

Prereq: P S 0281 or consent of instructor. Background of Soviet foreign policy and the policy-making process. Distinctive features of the policy output.

0690. Directed Study. Cr. 1-4 (Max. 4).

Prereq: consent of chairman. For seniors having a B or better average in political science courses. Not open to graduate students. Graduate students should elect Political Science 0790.

Graduate Courses

0701. Approaches to the Study of Comparative Government. Cr. 4.

Developmental and functional comparisons of foreign governments. Contemporary methodologies.

0702. Contemporary Approaches to Public Management. Cr. 4.

Prereq: consent of instructor. Comprehensive study of seminal writings in public management.

0703. The American Political System. Cr. 4.

Prereq: consent of instructor. Intensive review of literature analyzing the American political system. (Formerly Political Science 0713.)

0704. Problems in American Government. Cr. 4 (Max. 8).

Prereq: consent of instructor. Problems of current interest.

0706. Comparative Communist Systems. Cr. 4.

Differences and commonalities among political systems claiming the same ideological source of legitimacy. Comparison of select socio-political phenomena in a variety of Communist systems, including formal and informal political institutions.

0707. Comparative Regional Analysis. Cr. 4.

Prereq: consent of instructor. Principles of regional analysis applied to a particular region.

0709. Social Structure and Political Power in Latin America. Cr. 4.

Comparative analysis of relationships between social stratification systems and political structures in Latin America.

0710. Urban Political Analysis. Cr. 4.

Core readings and methods in urban political analysis.

0714. Theories of the Political System. Cr. 4.

Prereq: consent of instructor. Review of the systematic conceptualization of societal organization and change. Authority, mass society, structure and function, elites, class and status, ideology.

0715. Seminar in the Analysis of Public Policy. Cr. 4.

Prereq: consent of instructor. Theoretical frameworks; methodological techniques; intellectual problems in the systematic study of public policy. (Formerly Political Science 0815.)

0716. Introduction to Behavior and the Political Process. Cr. 4.

Behavioral materials on politics, field studies; experimentation in the application of socio-psychological techniques to study of political process; use of political behavior laboratory in processing of data.

0722. Programming and Operational Analysis. Cr. 4.

Prereq: consent of instructor. Techniques of modern management. Process and methods analysis, programming, scheduling, budgeting, work measurement and work simplification programs, operations research in public administration.

0723. Public Policy and the Aged. Cr. 4.

Prereq: P S 0520 or consent of instructor. Analysis and evaluation of public policy issues involving government role and programs in relation to senior citizens.

0724. Administrative Organization and Management. Cr. 4.

Prereq: P S 0520 or consent of instructor. Administrative situations.

0725. Seminar in Legislative Behavior. Cr. 4.

Survey of the research techniques employed in the study of legislative bodies; analysis of the resulting literature.

0727. Research Design in Political Science. Cr. 4.

Prereq: P S 0564 or equiv. or consent of instructor. Principles of the design of research in the study of politics and public bureaucracies. Evaluation of designs commonly used in social science research.

0729. Intergovernmental Relations. Cr. 4.

Cooperation and competition between units of government — federal-state, state-local, and federal-local. Finance and taxation, education, highways, housing, urban renewal.

0730. Public Management Training. Cr. 2-4.

Prereq: consent of department graduate adviser. Credit for significant work experience in government agency, or related civic or voluntary organization.

0733. Comparative Urban Politics and Administration. Cr. 4.

Urban political phenomena in America and foreign nations.

0734. Administrative Aspects of Urban Planning (SOC 0704) (U P 0735). Cr. 4.

Prereq: consent of instructor. Goals and policy structure for urban planning, regional planning, zoning, and related administrative problems.

0737. Advanced Organization Theory. Cr. 4.

Analysis and evaluation of concepts and theories of organizational management and behavior.

0738. Problems in Public Administration. Cr. 4 (Max. 8).

Prereq: P S 0520 or consent of instructor. Problems or problem areas of current significance.

0740. Advanced Survey of Public Law. Cr. 4.

Current developments. Especially for students who have not had undergraduate courses in the subject.

0743. Topics in Law and Politics. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0747. Urban Political and Social Change (U P 0755). Cr. 4 (Max. 4 for L.A. students; others max. 12).

Prereq: admission to Urban studies Corps of Center for Urban Studies. Problems in policy of housing, health, employment, education and environmental pollution. Power and the contributions of various disciplines to programs of effective political and social change.

0761. Topics in History of Political Thought. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0762. Justice and Equality. Cr. 4.

Analysis of conflict between equality and justice.

0764. Causal Models in Political Science. Cr. 4.

Prereq: two courses in statistics or consent of instructor. Theory of linear regression, problems of multi-collinearity and dummy variables, the Simon-Blalock technique, basic path models, introduction to non-recursive modeling.

0769. Topics in American Political Thought. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0770. Introduction to General Systems Theory. Cr. 4.

Prereq: consent of instructor. General systems theory and its uses in the analysis of political structures, processes, and functions.

0771. Intersystem Relations. (U P 0775). Cr. 4.

Relations between organizations, between municipalities and other metropolitan area authorities, and between different levels of government.

0772. Regional and Metropolitan Systems (U P 0765). Cr. 4.

Prereq: consent of instructor. Special district authorities, councils of governments, regional economic authorities, and other structures designed to facilitate collaboration across subnational and national boundaries.

0781. Theories of International Politics. Cr. 4.

Contemporary theories concerning national interest, power politics, decision making, systems theory, with application of insights from sociology and psychology.

0782. Trans-National Organizations. Cr. 2-4.

Prereq: consent of instructor. Regional organizations, alliances, understandings. Social and economic organizations transcending national boundaries.

0783. Comparative Foreign Policies. Cr. 4.

Prereq: consent of instructor.

0787. Advanced World Politics. Cr. 4.

Prereq: consent of instructor.

0790. Directed Study. Cr. 2-8.

Prereq: 24 graduate credits in political science; consent of chairman and graduate officer.

0795. Readings in Political Science. Cr. 1-4 (Max. 8).

Prereq: consent of adviser.

0799. Master's Essay Direction. Cr. 2-4 (4 required).

Prereq: consent of adviser.

0804. Seminar in American Government. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0810. Seminar in Comparative Politics. Cr. 4 (Max. 8).

Prereq: consent of instructor. Political-functional and operational rather than institutional aspects of political systems.

0826. Philosophic Problems in Inquiry. Cr. 4.

Required of all Ph.D. applicants. Exploration of selected problems in the philosophy of social science. (Formerly Political Science 0726.)

0835. Seminar in Public Administration. Cr. 4 (Max. 8).

Prereq: consent of chairman.

0845. Seminar in Public Law. Cr. 4 (Max. 8).

Prereq: 8 credits in public law or consent of instructor.

0850. Seminar in Metropolitan Government. Cr. 4 (Max. 8).

0865. Seminar in History of Political Thought. Cr. 2-8 (Max. 8).

0881. Seminar in International Politics. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0882. Seminar in International Organization. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0883. Seminar in International Law Cr. 4.

Prereq: consent of instructor.

0890. Research in Political Science. Cr. 2-16.

Prereq: consent of doctoral committee. Open only to students admitted to doctoral study.

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

Prereq: consent of adviser.

0999. Doctoral Dissertation and Research.

Credits to be arranged. Prereq: consent of doctoral committee.

Criminal Justice (CRJ)

0321. Administration of Justice I. Cr. 4.

Criminal justice system related to social justice for those studying law enforcement, criminology, corrections, sociology, social welfare, government, and urban affairs.

0322. Administration of Justice II. Cr. 4.

Prereq: P S 0321. Continuation of Political Science 0321 with emphasis on the operational services: patrol, the detective division, traffic, vice control, the youth division, non-crime functions.

0323. Administration of Justice III. Cr. 4.

Prereq: P S 0322. Continuation of Political Science 0322 with emphasis on auxiliary services: records and reports, problems of information retrieval, computer applications, communications, laboratory services, jail administration.

0324. Traffic Control I. Cr. 4.

Essentials of traffic law; organization of traffic functions. Enforcement policies and procedures. Identification and analysis of traffic problems. Experiments in traffic control.

0325. Traffic Control II. Cr. 4.

Prereq: P S 0324. Public education and traffic administration. Relations with planning, engineering and judicial agencies as well as unofficial organizations. Standards for traffic administration.

0326. Investigation I. Cr. 4.

Nature, collection and preservation of evidence, observation, interrogation.

0327. Investigation II. Cr. 4.

Prereq: P S 0326. Continuation of Political Science 0326 with emphasis on "modus operandi" processes and computer applications. Consideration of motivation and mental abnormality.

0328. Pro-Seminar: Criminal Investigation. Cr. 4.

Prereq: P S 0327 or consent of instructor. Investigative techniques such as probable cause, search and seizure, interrogation, eavesdropping, with particular emphasis on United States constitutional provisions for these functions.

0350. Police Records and Reporting. Cr. 4-8 (Max. 8).

The essentials of reporting and record keeping and their uses in management. Administration of record systems. Introduction to electronic data processing.

0360. Police Service in the Community. Cr. 4.

Prereq: consent of adviser. Role of the police officer in relation to the customs and problems of the community. The administrator's responsibilities to ethnic and minority groups. Comparative analysis of techniques being used by major police agencies to alleviate tensions.

0531. (CSC 0501) Computers and Research (UP 0552). Cr. 4.

Prereq: one and one-half units high school algebra. Introduction to computing, data processing, and computer utilization for research; computer languages, library programs and their use; job control languages.

0536. (SOC 0540) Criminology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Theories of causation of crime and treatment of convicted adult offender with reference to history and philosophy of punishment, operation of prison systems, probation and parole.

0537. (SOC 0544) Organized Crime: Its History and Social Structure. Cr. 4.

Prereq: SOC 0540. Social organizations of organized crime in the United States with particular emphasis on organized crime as a social system and its relationship to society.

0538. (SOC 0543) Theory of Probation and Parole. Cr. 4.

Prereq: SOC 0340 or 0540. Theories, current practices, field techniques. Projected plans evaluated. Emphasis on case materials.

0571. Public Law I. Cr. 4.

No graduate credit; no credit toward political science major. The history and development of criminal law and social control. Salient principles of law which have application to police work. Organization and jurisdiction of courts administering criminal law. Definition of crimes, their requisite elements, and the penalties provided. (Formerly Political Science 0341.)

0572. Public Law II. Cr. 4.

No graduate credit; no credit toward political science major. Prereq: P S 0571. Continuation of Political Science 0571 with emphasis on criminal procedure including the law of arrest, search and seizure. The rights of the accused, the duties of police officers, and the constitutional restraints on methods of law enforcement. (Formerly Political Science 0342.)

0573. Public Law III. Cr. 4.

No graduate credit; no credit toward political science major. Prereq: P S 0572. Continuation of Political Science 0572 with emphasis on the law of evidence and the particular roles of exclusion and admissibility. Types of evidence and their probative value, general principles relating to proof of questions of fact in criminal trials. The respective roles of prosecutor, police officer, judge, jury, and defense counsel in the judicial process. (Formerly Political Science 0343.)

0591. Police-Juvenile Procedures. Cr. 4.

No graduate credit; no credit toward political science major. Prereq: SOC 0541 or consent of instructor; police administration majors only. Review of law-enforcement administrative and judicial procedures in processing of juveniles. Evaluation of law-enforcement approaches to police-juvenile contacts.

0623. Pro-Seminar: Advanced Police Administration. Cr. 4-8 (Max. 8).

Prereq: P S 0323 or consent of instructor. Continuing police management problems: organization and objectives, planning and coordination, public support.

0624. Research Methods in Police Administration. Cr. 4.

No graduate credit; no credit toward political science major. Prereq: police administration major. Planning and design for research in police administration and related fields. Applications of selected methods.

0625. Labor Relations Law in a Criminal Justice System. Cr. 4.

Prereq: P S 0520 or equiv. or consent of instructor. Development of police labor organizations particularly in Michigan.

0736. Seminar: Criminal Justice Administration. Cr. 4.

Prereq: consent of instructor. Basic and in-depth analysis of advanced management theories, concepts, and techniques as they apply to the criminal justice system. Case method technique employed.

0778. (SOC 0782) Seminar in Criminological Theory. Cr. 2-4.

Prereq: introductory course in the particular field and consent of instructor.

0876. (PSY 0876) Seminar in Clinical Psychology. Cr. 1-4.

Prereq: written consent of instructor. Current research on psychodiagnostics, psychotherapy or other topics. Topics to be announced in Schedule of Classes.

PSYCHOLOGY

Office: 764 Mackenzie Hall

Chairman: Sheldon Alexander

Professors

Sheldon Alexander, Ph.D., David Asdourian, Ph.D., Alan R. Bass, Ph.D., C. G. Browne, Ph.D., Donald N. Elliott, Ph.D., Arthur Kornhauser, Ph.D. (Emeritus), †W. C. F. Krueger, Ph.D. (Emeritus), Sheldon J. Lachman, Ph.D., Gerald S. Leventhal, Ph.D., Wilson McTeer, Ph.D. (Emeritus), Hjalmar Rosen, Ph.D., Gerald Rosenbaum, Ph.D., Eli Saltz, Ph.D., E. B. Skaggs, Ph.D. (Emeritus), Charles M. Solley, Ph.D., Ross Stagner, Ph.D., Laurence J. Stettner, Ph.D., John E. Teahan, Ph.D.

Associate Professors

Joel W. Ager, Ph.D., Lynn R. Anderson, Ph.D., Sandor B. Brent, Ph.D., Kenneth S. Davidson, Ph.D., Ira J. Firestone, Ph.D., Winifred R. Fraser, Ph.D., Seth E. Haven, Ph.D. (Emeritus), Kalman J. Kaplan, Ph.D., Sheldon G. Levy, Ph.D., Michael M. Reece, Ph.D., Carolyn A. Shantz, Ph.D., Milton E. Strauss, Ph.D., Lillian E. Troll, Ph.D., Francine Wehmer, Ph.D.

Assistant Professors

Thomas Z. Cassel, Ph.D., Mark S. Goldman, Ph.D., Steven A. Lewis, Ph.D., Cary M. Lichtman, Ph.D., John M. Martin, Ph.D., Daniel L. Rourke, Ph.D., R. Douglas Whitman, Ph.D.

Adjunct Professors

Albert F. Ax, Ph.D.*, Donald F. Caldwell, Ph.D.*, Bernard Chodorkoff, Ph.D., M.D. (Kiefer Hospital), Marvin Hyman, Ph.D. (Detroit General Hospital), Stephen T. Kitai, Ph.D., Eli Z. Rubin, Ph.D.

Adjunct Associate Professors

Shirley I. Dobie, Ph.D.*, LaMaurice H. Gardner, Ph.D. (Children's Center), James H. Graves, M.D., James L. Grisell, Ph.D.*, Hyman L. Kempler, Ph.D.*, Frank M. Koen, Ph.D., Phillip M. Rennick, Ph.D.*, Ruth A. Rosen, Ph.D., Herbert Silverman, Ph.D.**, Raymond H. Starr, Ph.D.

Adjunct Assistant Professors

Joan Chodorkoff, Ph.D., David Faigenbaum, Ph.D. (Children's Hospital), Newton L. P. Jackson, Ph.D., Thomas W. Keiser, Ph.D.*, Valerie Klinge, Ph.D.*, David Lachar, Ph.D.*, Ronald F. Lewis, Ph.D.*, Helene Lycaki, Ph.D.*, Herbert B. Malos, Ph.D.**, Freda A. Milstein, Ph.D., Janet L. Pallas, Ph.D., Ned Papania, Ph.D.**, William J. Rowell, Ph.D. (Northeastern Child Guidance Clinic), Gerald Wehmer, Ph.D., Floyd Wylie, Ph.D., Andrew T. Yang, Ph.D. (Oakland County Juvenile Court)

† Deceased

* Lafayette Clinic

** Veterans Administration Hospital

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

Master of Arts in Teaching College Psychology

Doctor of Philosophy — with a major in psychology and specializations in clinical, cognitive, developmental, industrial, physiological or social psychology

Undergraduate training offered by the Department of Psychology serves three related purposes. For the liberal arts major, the study of psychology provides an opportunity for increased self-understanding and insight into the behavior of others; for students preparing for medicine, law, education, business, and other professions, psychology provides important basic knowledge useful in these vocations; and for those planning to carry on graduate study in psychology, instruction seeks to establish a sound foundation for a career in professional psychology. While such undergraduate training may provide excellent preparation for positions in business, in government, in social service, an undergraduate major in psychology does not prepare the student for a position as a professional psychologist. As a minimum, the master's degree is required, and for most professional positions, the doctorate is essential. Information about positions in professional psychology, and the training necessary, can be obtained in the office of the department. Students planning to major in psychology should review the *Orientation Bulletin for Majors* before applying for acceptance. This bulletin is available in the department office or will be mailed on request.

BACHELOR OF ARTS or BACHELOR OF SCIENCE

Major Requirements — To graduate with a major in psychology a student must complete satisfactorily at least thirty credits in the department, beyond the introductory course, in a sequence approved by his major adviser. Degree requirements include Psychology 0302 plus three of the following courses: 0305 (perception), 0307 (learning), 0310 (statistical methods), 0360 (social behavior), and 0505 (physiological); one of these three must be 0305 or 0307. Psychology 0493 and 0496 do not count toward the thirty-credit requirement. The maximum number of hours in psychology for any major is sixty-eight. To receive the bachelor of science degree, the student must earn a minimum of forty credits in natural science outside the field of psychology.

Honors Program — Students with an over-all grade-point average of 3.0 are eligible for admission to the Departmental Honors Program. Satisfactory completion of the honors program will lead to a degree "With Honors in Psychology" on the diploma. Students interested in the program can obtain detailed information from the Departmental Honors Program supervisor.

Honors Sections, providing smaller classes, somewhat more advanced readings, and opportunities for independent work by students are offered in the courses 0198 (Introductory Psychology), 0360 (Psychology of Social Behavior), and 0430

(Abnormal Psychology). In addition, there is an Honors Directed Study course (0590), an Honors Problem course (0596) and a two-quarter Senior Honors seminar (0597-0598) in which a senior thesis is completed.

Honors Citation for Majors — Psychology majors earning an over-all grade point average of 3.0 and a grade point average of 3.5 in psychology courses will receive a departmental citation at the time of graduation.

Graduate Work Prerequisites — Students who intend to do graduate work in psychology should take Psychology 0302 (research) and all five courses listed under the *Major Requirements* above. Additional courses in mathematics, biology, and sociology are strongly recommended.

Non-majors are invited to consult with departmental advisers regarding optimum course selections for various purposes.

MASTER OF ARTS and DOCTOR OF PHILOSOPHY PROGRAMS

General Admission Requirements — Applicants for both the master's and doctor's degrees must normally have at least a 3.0 honor point average in all course work, with an average of B in psychology courses. Applicants must have had a minimum of eighteen credits in psychology with courses in experimental (laboratory) psychology, and statistical methods in psychology. Courses in college mathematics and in biological science are recommended. The Psychology Department requires three recommendations and a departmental application form, in addition to the transcripts and application form required by the Graduate Division. The Graduate Record Examination is required of all applicants; the Miller Analogies Test is desirable. Appropriate forms and instructions may be secured from the Department of Psychology. Applicants will not be accepted into the program until this material has been received and evaluated. While applications are accepted for either the M.A. or the Ph.D. degree, preference is given to students seeking the doctorate. Graduate applicants are admitted only for the fall quarter.

Doctoral applicants and all applicants for financial aid must have all forms in the hands of the Departmental Graduate Committee before February 15. Most appointments will be made by March 15. In exceptional cases, applications will be accepted until June 1.

All graduate students are expected to maintain a B average. Students receiving grades of C in more than two courses will be dropped from the graduate program. Courses at the 0500 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

Plan A — Thirty-six credits in course work plus a thesis (twelve credits).

Degree Requirements — At least twenty-five credits must be earned in the Department of Psychology, in addition to the thesis. Required courses in the master's program are Psychol-

ogy 0715 and one of the following: Psychology 0708, 0709, 0725, 0762.

Emphasis is placed on factual knowledge, theory, and research methods in general psychology; specialization is permitted in the areas of experimental-theoretical psychology, cognitive, physiological, personnel-industrial-social psychology, and personality-developmental psychology. Part of the specialized work may be in related departments. There is no master's program in clinical 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 Committee on Graduate Study.

A final oral examination pertaining to the thesis and all courses included in the student's degree program is required.

Master of Arts in Teaching College Psychology

Plan B — Forty-five credits in course work plus an essay.

Degree Requirements — At least twenty-five credits must be earned in the Department of Psychology, in addition to the essay. Required courses in the master's program are Psychology 0715, and one of the following: Psychology 0708, 0709, 0725, 0762.

Emphasis is placed on factual knowledge, theory and research methods in general psychology, and on developing and understanding of and skill in the teaching of psychology.

An oral examination pertaining to the essay and course work is required.

DOCTOR OF PHILOSOPHY

In order that students may acquire a broad background in the factual and theoretical content of psychology, four courses will be required of all doctoral candidates. These are numbered 0708, 0709, 0725, and 0762. To supplement these, and to emphasize the quantitative approach in psychology, three advanced courses in statistics and measurement, 0715, 0716, and 0717, are also required. Each student will be expected to establish competence in depth in one specialized area, together with a lesser concentration in a minor area (minimum of eight credits). A student must meet the Graduate Division language requirement before he is eligible to take the final qualifying examination. A minor outside the department (twelve credits) is also required.

Students specializing in clinical psychology take courses in clinical research, psychopathology, diagnostic methods and therapeutic interventions. Requirements also include supervised experience in diagnosis and treatment of clients in practicum courses and during an internship. Special opportunities for training and research in neuropsychology and community psychology are available in the clinical program.

The cognitive processes area provides for specialization in learning, perception, concept formation and reasoning. Re-

search is usually conducted in the Center for the Study of Cognitive Processes.

A specialty is offered in physiological, sensory and comparative psychology. An extensive animal-physiological laboratory, an auditory research laboratory, and other relevant facilities are available.

The developmental area provides specialization in cognitive and emotional changes from infancy to old age. Emphasis is on general principles of development, but each student may select an age-range for special concentration. For research on young children the Merrill-Palmer Institute provides access to its facilities. Cooperative arrangements also exist with various other agencies.

The industrial psychology program offers concentrations in organizational theory and functioning, in personnel selection, in union-management relations, and in managerial development. Opportunities exist for part-time work in local corporations, and for teaching in management and labor courses.

The social psychology area offers concentrations in attitude theory and change, decision-making, small group behavior, political psychology, and community mental health.

Every doctoral student is required to do some teaching and some research other than the Ph.D. dissertation before completion of his degree. The required examinations are a final qualifying examination, including written and oral portions, taken normally after the completion of ninety credits of graduate work; and an oral examination after completion of the dissertation, pertaining to both course work and the dissertation.

ASSISTANTSHIPS

Numerous teaching and research assistantships in the Department of Psychology and in a variety of cooperating agencies (including Lafayette Clinic, Public Health Service, Veterans Administration traineeships) are available to qualified students. Fellowships in the Center for Urban Studies are open to psychology students. Inquiries and applications should be addressed to the chairman of the department.

COURSES OF INSTRUCTION¹ (PSY)

Courses marked with † may not be elected for graduate credit by graduate degree candidates in psychology.

0198. Introductory Psychology. Cr. 4.

Three hours outside research participation required. Principles and theories of human thought and action. Majors are required to take Psychology 0302 following this course.

0301. Points of View in Modern Psychology. Cr. 4.

Prereq: PSY 0198. Study of major systems of psychology, including the influence of scientific thought from other disciplines and countries on models in psychology.

0302. Research in Psychology. Cr. 4.

Prereq: PSY 0198. Experimental design; analyses and interpretation of experimental findings; elementary statistical analyses; typical experimental findings.

0305. Perception. (3,4). Cr. 5.

No credit after Psychology 0306. Prereq: PSY 0198, 0302. Man's knowledge of the world around him; basic sensory processes; organization and differentiations of percepts. Laboratory investigations of basic perceptual phenomena.

0306. Readings in Perception. Cr. 4.

No credit after Psychology 0305. Prereq: PSY 0198. How man perceives the world around him. Basic perceptual phenomena. Effects of culture, experience, and personality on perception of the physical and social world.

0307. Learning and Memory. (3,4). Cr. 5.

No credit after Psychology 0308. Prereq: PSY 0198, 0302. Theoretical and experimental literature, including sensory and motor learning; complex learning in man; laboratory investigations of basic learning phenomena.

0308. Readings in Learning and Memory. Cr. 4.

No credit after Psychology 0307. Prereq: PSY 0198. Theoretical and experimental literature on learning and memory, including motor and sensory learning and complex learning in man.

0310. Statistical Methods in Psychology. Cr. 5.

Prereq: PSY 0198. Primarily for psychology majors, others with consent of instructor. Principles and computational methods that apply to quantitative aspects of psychological procedure; elementary correlation theory and prediction, sampling problems, tests of hypotheses, elementary test theory, interpretation of results.

0311. Differential Psychology. Cr. 4.

Prereq: PSY 0198. Individual differences: how and why people differ in their behavior, both individually and as groups; age differences, sex differences, racial differences. Content and methodology.

0317. Psychology of Music I. Cr. 4.

Prereq: PSY 0198. Open only to majors in humanities, music, or psychology. Experimental and theoretical literature dealing with physical, physiological, and psychological factors affecting creation and enjoyment of music.

0318. Psychology of Music II. Cr. 4.

Prereq: PSY 0317. Open only to music therapy majors or psychology majors with consent of instructor. Basic research concepts and experimental methods in psychology of music research. Practical training in conducting experimental research of musical behavior.

0330. Psychology of Adjustment. Cr. 4.

Prereq: PSY 0198. Processes involved in adjustment of the individual to his personal and social environment. Techniques of adjustment and the role of conflict and frustration. This course should precede any work in abnormal psychology.

0335. Theories of Personality. Cr. 4.

Prereq: PSY 0198. Evaluative review of personality theories, emphasizing neo-Freudian, social learning, cognitive, and semantic explanations of human behavior and their differential implications for psychotherapy and research.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0340. Developmental Psychology. Cr. 4.

Prereq: PSY 0198. Facts, principles, theories of psychological development, both ontogenetic and phylogenetic. Development of intelligent, emotional, perceptual, linguistic, and social behavior. Developmental trends.

0350. Survey of Industrial and Personnel Psychology. Cr. 4.

No credit after Psychology 0550. Prereq: PSY 0198. Psychology as applied to business and industry. Major areas of industrial psychology such as selection, placement, and training procedures; human factors research. Industrial social psychology with respect to motivational and organizational research and theory.

0360. Psychology of Social Behavior. Cr. 4.

Prereq: PSY 0198. Social behavior of the individual as influenced by the group. Particular attention given to social perception, motivation, and learning; attitudes and values; dynamics of social groups.

0411. Introduction to Psychological Tests. Cr. 4.

Prereq: 8 credits in psychology. Typical tests now widely used. Problems involved in choosing appropriate tests, elementary methods of presenting test data, reliability and validity, calculation and interpretation, evaluation of test content. Test construction.

0420. Motivation, Feeling, and Emotion. Cr. 4.

Prereq: 8 credits in psychology. Experimental findings in psychological and allied fields on topics of motivation, feeling, and emotion; evaluation of classical theories and an attempt to develop a theoretical approach based on factual knowledge.

0430. Abnormal Psychology. Cr. 4.

Prereq: PSY 0330. Nature and causes of various forms of personality deviations commonly called abnormal or atypical.

0461. Laboratory in the Psychology of Social Behavior. (2,4). Cr. 4.

Prereq: PSY 0302 and 0360. Introduction to laboratory investigation in the psychology of social behavior using standard experiments with standard psychological equipment.

0490. Individual Study and Research. Cr. 2-5 (Max. 8).

Prereq: psychology major; written consent of adviser. Library or laboratory study of an advanced problem in psychology under the guidance of a faculty member. A specific statement of the nature of the project must be filed with the department chairman at registration.

0493. Field Study. Cr. 2-5 (Max. 12).

Prereq: written consent of instructor. Offered for S and U grades only. Assignment to a hospital, clinic or other agency under faculty supervision. Term paper on observations made in the field.

0496. Special Projects. Cr. 2-5 (Max. 12).

Prereq: 8 credits in psychology; written consent of instructor. Offered for S and U grades only. Departmental assignment to special projects such as tutoring introductory courses.

0499. Special Topics in Psychology. Cr. 4 (Max. 8).

Prereq: 8 credits in psychology. Topics of current interest such as: the psychology of women, environmental psychology. Reading list and syllabus developed for each topic before it is scheduled.

0505. Physiological Psychology. Cr. 4.

Prereq: 12 credits in psychology. Physiological mechanisms underlying behavior and mental processes; sensory-motor mechanisms; integrative action of the nervous system; neuro-physiological mech-

anisms involved in emotional behavior, learning and memory; influence of hormones on behavior.

0506. Laboratory in Physiological Psychology. (0,8). Cr. 4.

Prereq: PSY 0505 and consent of instructor. Outline of gross neuroanatomy, basic experiments in physiological psychology utilizing brain lesions, chronic electrode implantations in small animals, and measurement of human autonomic responses.

0509. Comparative Psychology. (4,2). Cr. 5.

Prereq: 12 credits in psychology. Comparison of psychological processes in organisms ranging from simplest to most complex; emphasis on vertebrates, especially mammals.

0511. Ethology: Comparative Animal Behavior. Cr. 4.

Prereq: 12 credits in psychology. Function, biological significance, causation and evolution of species-typical behaviors: sexual, maternal, critical periods in development, aggression, social group structure, and over-population.

0540. Overview of Life Span Development. Cr. 4.

Prereq: PSY 0198. Not open to psychology majors nor graduate students in psychology. Overview of life-span theory and research; comparison of existing theories of development against available evidence for stability or change in physical, intellectual and personality functioning from birth to death.

0543. Infant Behavior and Development. Cr. 4.

Prereq: 12 credits in psychology including PSY 0340 or 0540. Major theoretical positions and research relating to early cognitive, perceptual, emotional and social development.

0544. Child Behavior and Development. Cr. 4.

Prereq: 12 credits in psychology including PSY 0340. Developmental processes in childhood: language acquisition, cognitive development, development of peer-peer interactions.

0546. Adolescent Behavior and Development. Cr. 4.

Prereq: 12 credits in psychology including PSY 0340 or 0540. Focus on the transitional nature of the adolescent period between childhood and adulthood. The effect of accelerated social change on identity, values, family relationships, and personality transmission. Nature of generational processes and individual development.

0549. The Aging Individual in Society. Cr. 4.

Prereq: 12 credits in psychology including PSY 0340 or 0540. Biological, social, and psychological theories of aging; time associated changes in behavior; personality changes in later life; social and personal adjustment and psychopathology in later life.

†0550. Selection and Placement. Cr. 4.

Prereq: PSY 0310, 0350, or written consent of instructor. Principles and techniques of psychology in relation to the problems of personnel selection and placement. Scientific appraisal of vocational aptitudes and skills by means of industrial tests, rating scales, interrogation methods. Measurement of attitudes.

†0553. Organizational Psychology. Cr. 4.

Prereq: PSY 0350 or 0360, or written consent of instructor. Application of principles of social psychology to industrial phenomena. Parameters of organization and criteria of effectiveness: profitability, morale. Classical theories of organization. Theory and applications of power, interaction, conflict, and decision to industrial corporations and unions.

0556. Psychology of Union-Management Relations. Cr. 4.

Prereq: 12 credits in psychology including PSY 0350 or 0360. Perceptual and motivational factors influencing behavior of workers, executives, union officers. Psychological factors in strikes; principles relevant to union-management cooperation.

0557. The Psychology of Human Performance. Cr. 4.

Prereq: 12 credits in psychology including PSY 0310; or consent of instructor. Application of psychological methods and principles to man-machine systems. Man's capabilities and limitations as an element in the system.

0558. Consumer Psychology. Cr. 4.

Prereq: PSY 0310, 0360; or written consent of instructor. Psychological theory and research relevant to consumer behavior. Relationships among marketing research, product design, selling and advertising. Stress on research design and sampling.

0562. Psychology of Influence. Cr. 4.

Prereq: PSY 0360 or consent of instructor. Psychological processes; emotion, motivation, cognition, leadership, communication, and behavioral contagion in the initiation and maintenance of mass behavior, including panics and riots, social and political movements.

†0563. Group Dynamics. Cr. 4.

Prereq: 12 credits in psychology including PSY 0360; or written consent of instructor. Historical and theoretical development of the "group dynamics" movement and contemporary approaches to conceptualization of small group processes. Communication and power structures, group problem solving, intra- and inter-group conflict and cooperation.

†0564. Attitudes. (3,2). Cr. 4.

Prereq: 12 credits in psychology including PSY 0302 and 0360; or written consent of instructor. Nature and significance of attitudes, opinions, beliefs. Structure and functions of attitudes, on methods of change.

†0565. Psychological Aspects of Leadership. Cr. 4.

Prereq: 12 credits in psychology; or written consent of instructor. Problems of leadership; functions and duties of leaders, executives. Surveys and methods of study utilized to train and select leaders.

†0566. (P S 0577) Psychology of Political Leadership. Cr. 4.

Prereq: PSY 0360, one other course in psychology, or consent of instructor. Nature and theories of leadership; identification of leaders; kinds of political leaders; leadership behavior, style, and effectiveness; motivational factors in political leadership.

0567. Psychology of Communications and General Semantics. Cr. 4.

Prereq: 12 credits in psychology or written consent of instructor. Psychological aspects of interchange of human thoughts and concepts. Methods of studying communications, relationships between communications and personal adjustment, industrial problems, leadership, everyday contacts.

0568. Social Psychology of Personality. Cr. 4.

Prereq: 12 credits in psychology. Consideration of social, structural and interpersonal determinants of personality formation, functioning and change; social learning, role theory, and cognitive approaches to personality in children and adults.

0590. Honors Directed Study. Cr. 4 (Max. 12).

Prereq: written consent of Psychology Honors Program supervisor; open only to juniors and seniors in Psychology Honors Program.

Tutorial course. Student reviews the literature and writes a scholarly paper on a selected problem.

0596. Honors Problem Course. Cr. 4 (Max. 12).

Prereq: acceptance in Psychology Honors Program, written consent of faculty supervisor. Tutorial course. Independent research under the direction of a faculty member.

0597. Senior Honors Seminar I. Cr. 4.

Credit only on satisfactory completion of Psychology 0598. Prereq: psychology major, 12 credits in psychology, senior standing, 3.0 h.p.a. Philosophical issues in psychological concepts and theories; logic of research and theory construction. Review of fundamental concepts in the light of these logical structures. Design of an individual research project.

0598. Senior Honors Seminar II. Cr. 4.

Prereq: PSY 0597. Small research project; class meetings devoted to discussion of the research designs and results.

0600. History of Psychology. Cr. 4.

Prereq: 16 credits in psychology including one 0500 level course; or written consent of instructor. Origin and development of psychology as subject matter and as science.

0606. Sensory Processes. (4,2). Cr. 5.

Prereq: 16 credits in psychology including one 0500 level course; or written consent of instructor. Advanced study of physiological mechanisms and psychological processes involved in sensory and perceptual experiences. Some laboratory work.

0607. Physiological Bases of Motivation, Learning and Memory. Cr. 4.

Prereq: PSY 0505 or consent of instructor. Recent research on brain stimulation, brain lesions and biochemical influences which affect human and animal behavior.

0609. Higher Mental Processes. (4,2). Cr. 4.

Prereq: 16 credits in psychology including one 0500 level course; PSY 0302, and 0305 or 0307; or written consent of instructor. Distinctiveness of human thought processes considered from theoretical and experimental viewpoints. Comparative and developmental approach; focus on problems and issues.

0612. Laboratory in Ethological Methods. (1,6). Cr. 4.

Prereq: PSY 0511 or consent of instructor. Ethological methods of behavior study; consideration of different observational techniques. Study of children, adults and small animals in the laboratory and zoo. (Formerly Psychology 0512).

0615. Introduction to Mathematical Psychology. Cr. 4.

Prereq: 16 credits in psychology including PSY 0310 and one 0500 level course; or written consent of instructor. Use of quantitative theory in psychological research and theory construction. Mathematical models. The Markov models in learning.

0616. Use of Computers in Psychological Research. Cr. 4.

Prereq: 16 credits in psychology including PSY 0310 and one 0500 level course, or written consent of instructor. Computer applications in current psychological research. Not a course in computer programming; while prior training in this area is recommended, it is not required.

0628. Psychoanalytic Theory. Cr. 4.

Prereq: 16 credits in psychology including one 0500 level course and PSY 0430. For students who have had considerable work in

psychology and for psychology majors. Facts and theories as developed by Freud and his students.

0635. Assessment of Personality. Cr. 4.

Prereq: 16 credits in psychology including one 0500 level course and PSY 0430. Methods and accomplishments. Theory, development, results of assessment methods rather than on techniques of administering them.

0649. Developmental Psychology of Death, Dying and Lethal Behavior. (3,1). Cr. 4.

Prereq: PSY 0340, 0430, or consent of instructor. Changing relationship to death and finitude throughout the life-cycle: development and function of death cognitions, factors predisposing toward suicide and other premature deaths at various age levels, and the dying process.

0664. Social Perception. Cr. 4.

Prereq: 16 credits in psychology including PSY 0360 or SOC 0460; or written consent of instructor. Characteristics of the perceiver; the observed and interactional processes; relation of perceptual, cognitive, and personality theory to social perception; the nature of cognitive work; developmental considerations.

0665. Justice in Social Relationships. Cr. 4.

Prereq: 16 credits in psychology including PSY 0360 or SOC 0460; or written consent of instructor. Fairness and equity as determinants of the distribution of rewards and resources in groups and organizations. Examination of the perception and behavior of persons who allocate resources and persons who receive them.

0666. Political Psychology (P S 0666). Cr. 4.

Prereq: PSY 0360 and either PSY 0310 or 0461. Cognitive and emotional factors — loyalty, aggression, anxiety, leadership, propaganda — as they affect domestic and international politics. Biographies and public opinion data.

0708. Perception and Its Issues. Cr. 4.

Prereq: admission to graduate program in psychology. Current theories and issues examined, analyzed, evaluated. Relationship of theory to research.

0709. Theories of Learning. Cr. 4.

Prereq: admission to graduate program in psychology. Systematic examination of learning theories.

0710. Conceptual Behavior. Cr. 4.

Prereq: admission to graduate program in psychology; PSY 0609 or written consent of instructor. History, theory and recent research in the area of concept development and concept utilization.

0711. Advanced Comparative Psychology. Cr. 4.

Prereq: PSY 0509 or equiv.; or consent of instructor; admission to graduate program in psychology. Specific problems: role of behavior in evolution, behavior genetics, sensory capacities, learning capacities, sexual behavior, parental and filial behavior, social behavior, the significance of primate social behavior for human evolution.

0713. Research Methods and Ethical Issues in Experimentation. Cr. 4.

Credit only on completion of 4 credits in Psychology 0899. Required of all cognitive process and physiological-comparative-sensory majors. Ethics in human and animal experimentation. Research design and criterion. Development of independent research project of master's thesis quality.

0714. Psychophysical and Scaling Methods. (3,2). Cr. 4.

Prereq: PSY 0302 and 0310; or written consent of instructor. Major psychophysical methods; data analysis and written reports.

0715. Quantitative Methods I: Statistical Analysis. (2,2). Cr. 4.

Prereq: PSY 0310. Basic statistical methods, emphasizing inferential statistics; Chi square, t, F, linear regression and correlation; selected non-parametric techniques.

0716. Quantitative Methods II: Experimental Design; Analysis of Variance. Cr. 4.

Prereq: PSY 0715. One-way analysis of variance; factorial randomized block and selected mixed designs, covariance, transformations.

0717. Quantitative Methods III: Measurement. Cr. 4.

Prereq: PSY 0716. Selected multivariate techniques: multiple regression, discriminant function, factor analysis. Test theory: reliability, validity, problems in selection. Test construction: scaling.

0720. Psychodiagnostics I. Cr. 4.

Prereq: admission to graduate program in psychology, written consent of instructor. Orientation to clinical measurement, psychological theory, interaction between psychologist and client. Discussion of relevant issues: reliability, validity, clinical vs. statistical prediction. Practicum in rating preschoolers, interviewing psychiatric patients.

0721. Psychodiagnostics II. Cr. 4.

Prereq: PSY 0720; or written consent of instructor. Continuation of Psychology 0720. Understanding and practice of individual tests of intelligence.

0722. Psychodiagnostics III. Cr. 4.

Prereq: PSY 0721; or written consent of instructor. Continuation of Psychology 0721. Projective tests, theory and practice.

0723. Practicum in Clinical Procedures. Cr. 4-8 (Max. 8).

Prereq: consent of director of clinical psychology training program. Offered for S and U grades only. Clerkship in one of the clinics cooperating with the University, emphasizing psycho-diagnostic work.

0724. Ethical Issues in Clinical Psychology. Cr. 1.

Prereq: admission to clinical program. Required of all clinical students. Offered for S and U grades only. Discussion of crucial problems in various phases of clinical psychology, research, practice, and teaching.

0725. Theory of Personality. Cr. 4.

Prereq: PSY 0430, admission to graduate program in psychology. Review of theories of personality organization in attempt to build a workable theory of personality from the psychological point of view.

0730. Psychopathology. Cr. 4.

Prereq: PSY 0430, admission to graduate program in psychology. The basic psychological concepts of psychopathology; illustrations of the concepts with the clinical observations they are devised to explain; the relevance of the concepts to clinical practice.

0732. Psychotherapy: Behavior Modification. Cr. 4.

Prereq: PSY 0730, 0735 and consent of instructor. Various techniques and the theory and research underlying them.

0733. Clinical Neuropsychology. Cr. 4.

Prereq: PSY 0505; admission to graduate program in psychology

or written consent of instructor. History, research methodologies, current theories regarding brain, neural functioning and dysfunctioning.

0734. Psychophysiology of Emotion. Cr. 3.

Prereq: PSY 0302, 0310; and 0430 or 0505. Research seminar including review of the relevant literature and an experimental study. Theories of psychophysiology, design of experiments, specific working hypotheses.

0735. Experimental Psychodynamics I. Cr. 4.

Prereq: PSY 0730. Open only to Ph.D. students in psychology or consent of instructor. Research in dynamic psychology; experimental methodology. Role of motivation, frustration, conflict, learning in the genesis of mechanisms. Independent experimentation.

0736. Experimental Psychodynamics II. Cr. 4.

Prereq: PSY 0735 or written consent of instructor. Continuation of Psychology 0735. Emphasis on the genesis and treatment of behavior disorders. Independent experiments by students.

0737. Theories of Psychotherapeutic Counseling. Cr. 4.

Prereq: PSY 0628, 0730 and written consent of instructor. Background, methods, problems in administration and evaluation of psychotherapy.

0738. Introduction to Psychotherapy. Cr. 4.

Prereq: PSY 0730, acceptance in doctoral program or written consent of instructor. Presentation of case carried by experienced therapist to demonstrate problems of technique, to illustrate psychodynamic mechanisms, to stimulate interest in research in mental and emotional life.

0739. Supervised Practice in Psychotherapy. Cr. 3-6 (Max. 12).

Prereq: PSY 0730 and 0738, written consent of instructor. Offered for S and U grades only. Supervised by qualified psychotherapists. Each hour of case is recorded on tape by student, played back at conference with supervisor.

0740. Introduction to Life-Span Developmental Psychology. Cr. 4.

Prereq: admission to graduate program in psychology, written consent of instructor. Theory, methods and selected content areas: cognitive and social development as they relate to the entire life cycle.

0743. Early Human Development. Cr. 4.

Prereq: PSY 0740 or written consent of instructor. Seminar on infancy and early child development; achievement of self-regulatory processes; comparative studies.

0744. Development of Intelligence. Cr. 4.

Prereq: PSY 0740 or consent of instructor; open only to graduate students in psychology. Piaget's theory of intellectual development from infancy through adolescence and review of relevant research.

0745. Experimental Child Psychology. Cr. 4.

Prereq: PSY 0740 or written consent of instructor. Research in growth and development; language, emotional, social and motor development. Student does research project.

0746. Developmental Psychology of Adolescence. Cr. 4.

Prereq: PSY 0740 or written consent of instructor. Cognitive and dynamic changes in the adolescent years from the perspective of life-span developmental psychology with emphasis on integrative processes.

0747. Research Strategies for Developmental Psychology. Cr. 4.

Prereq: PSY 0717 and 0740 or consent of instructor. Methodology in longitudinal, cross-sectional and sequential research on developmental processes; appropriate statistics and practical problems.

0748. Psychological Development in the Adult Years. Cr. 4.

Prereq: PSY 0740 or consent of instructor. A life-cycle approach to the adult years, covering biological, social, and psychological changes with age. Lectures, discussion, and individual research projects on salient issues in adult development.

0749. Developmental Psychology of Later Life. Cr. 4.

Prereq: PSY 0740 or written consent of instructor. The later years of human life from the perspective of developmental psychology, with attention to viewpoints in biology, sociology. Particular emphases are placed on personality structure and phenomenological life, and the possibilities of continuous psychological development.

0750. Research Methods in Industrial Psychology. Cr. 4.

Prereq: PSY 0715. Analysis of methodology and research design problems in the field of industrial psychology; discussion of professional and ethical problems of this field.

0751. Research Methods in Industrial Criterion Development. Cr. 4.

Prereq. or coreq: PSY 0717 and 0750 or consent of instructor. Criteria of job performance: nature and kinds of criteria, performance ratings. Problems of collecting reliable criterion data; need for multiple criteria on most jobs; techniques for improving criteria.

0752. Theory and Research in Selection and Placement. Cr. 4.

Prereq: PSY 0750 and 0751 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.

0755. Psychological Analysis of Organizations. Cr. 4.

Prereq: PSY 0750 and 0762. Required of all first-year graduate students in industrial and organizational program. Psychological concepts of conformity, role, leadership, communication conflict, decision making and bargaining in organizational behavior.

0756. Theory and Research on Leadership and Executive Development. Cr. 4.

Prereq: PSY 0750. Selected leadership research studies; theories relating to leadership; principles of training and development.

0757. Theory and Research on Industrial Motivation and Morale. Cr. 4.

Prereq: PSY 0750 and 0762. Meaning of motivation and incentive as used in industry; research methods for study of motivation, job satisfaction, and morale; research data and interpretations in theoretical frameworks.

0759. Advanced Psychology of Human Performance. Cr. 4.

Prereq: PSY 0715 and 0750 or written consent of instructor. Man's role in man-machine systems. Techniques and technology designed to develop and assist the capabilities of man in a man-machine system. Environmental and organismic variables as they affect system operation.

0761. Research Seminar in Social Psychology. Cr. 2-4 (Max. 6).

Credit only on satisfactory completion of two successive quarters. Prereq: PSY 0715 and 0762. Research problems and methodology in social psychology, touching on field research, laboratory research, and attitude measurement techniques.

0762. Theories of Social Psychology. Cr. 4.

Prereq: PSY 0360, admission to graduate program in psychology. Socio-psychological theories considered essential to understanding the influence of the group on the individual, and of the individual on the group.

0763. Small Group Behavior: Research and Theory. Cr. 4.

Prereq: PSY 0715 and 0762; admission to graduate program in psychology. Contemporary approaches to research on social influence processes, power structures, conformity processes, and problem solving in the small group; methodology.

0766. Field Research Methods. Cr. 2 (Max. 4).

Credit only on satisfactory completion of two successive quarters. Prereq: PSY 0715 and 0762 or written consent of instructor. Introduction to the special problems of design, data collection and data analysis encountered in field research; surveying, interviewing and field observation.

0767. Attitude Theory and Measurement. Cr. 4.

Prereq: PSY 0762. Effective, cognitive theory, balance theory, dissonance theory and functional theory, distinguishing between attitude formation and evaluative and cognitive consistency.

0768. Experiments in Changing Attitudes. Cr. 4.

Prereq: PSY 0762 and 0767. Techniques used: reinforcement, persuasion, forced compliance, communication, communication channel, personality and audience effects, involvement, commitment and fear.

0770. Psychology of Language. Cr. 4.

Prereq: written consent of instructor. Classical and contemporary theory and research on the psychological aspects of language. Phylogenetic, ontogenetic, pathological, cross-cultural, cognitive, and structural aspects.

0790. Directed Study. Cr. 1-12 (Max. 12).

Prereq: written consent of instructor, adviser and graduate officer. For students who wish to delve further into technical literature of some problem which has been systematically reviewed in one of preceding courses. Intensive and systematic reading of original literature (particularly journals) dealing with topics or problems.

0795. Research Problems. Cr. 2-6 (Max. 8).

Prereq: written consent of instructor and adviser. Original research under direction of departmental staff. Final written report and examination.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: candidate for M.A. in teaching psychology and consent of adviser.

0802. Advanced Study of Psychological Systems. Cr. 4.

Prereq: PSY 0301 or 20 credits in psychology. Recent systems; scope of interest, methodology, particular problems.

0804. Seminar in Biochemistry and Behavior. Cr. 4.

Prereq: written consent of instructor. Influence of drugs, hormones, and endogenous chemical processes on behavior; current research in endocrinology, neuroendocrinology and neuropsychopharmacology.

0806. Advanced Physiological Psychology I. Cr. 4.

Credit only on completion of Psychology 0807. Prereq: PSY 0505, written consent of instructor. Physiological correlates of behavior. Contemporary literature and techniques used in psycho-physiological research in areas of learning, motivation, perception.

0807. Advanced Physiological Psychology II. Cr. 4.

Prereq: PSY 0806. Continuation of Psychology 0806.

0809. Instrumental Learning and Classical Conditioning. Cr. 4.

Prereq: PSY 0709. Experimental phenomena and their significance for learning theory.

0810. Verbal Learning. Cr. 4.

Prereq: PSY 0709 or written consent of instructor. Empirical facts and theoretical directions of current research.

0815. Multivariate Analysis in Psychology. Cr. 4.

Prereq: PSY 0717 or consent of instructor. Factor analysis; centroid and principal axis methods of factoring; orthogonal and oblique factor solutions; factor models of Spearman, Thurstone and Guttman; design of factor experiments. Linear discriminant function. Latent structure analysis. Profile analysis.

0816. Advanced Experimental Design. Cr. 4.

Prereq: PSY 0717 or consent of instructor. Latin and Graeco-Latin square designs. Mixed designs. Incomplete block designs. Orthogonal polynomials. Trend analysis. Curve fitting.

0818. Mathematical Models of Cognitive Processes. Cr. 4.

Prereq: PSY 0616, 0709 and written consent of instructor. Models in learning, problem solving, information processes, and judgment and choice. Current status of quantitative theory in the study of cognitive processes.

0833. Advanced Clinical Neuropsychology. Cr. 4.

Prereq: PSY 0722 and 0733. The etiology, symptomatology, pathogenic process and treatment of brain disorders in the classes of traumatic, infectious, degenerative, vascular, neoplastic, and epileptic disorders; neuropsychologic evaluations of selected case material.

0840. Current Issues in Developmental Psychology. Cr. 4 (Max. 12).

Prereq: written consent of instructor. Integrative seminar in current theoretical and empirical issues.

0850. Seminar in Industrial Psychology. Cr. 2-4 (Max. 8).

Prereq: consent of instructor. For industrial psychology students. Current topics in industrial psychology. Content varies.

0860. Seminar in Social Psychology. Cr. 4 (Max. 12).

Prereq: PSY 0762 and written consent of instructor. Review and evaluation of the literature on some current topic of research or theoretical concern.

0868. Seminar in Comparative and Physiological Psychology. Cr. 4 (Max. 12).

Prereq: written consent of instructor. Detailed analysis of one or more of the many current research problems in these areas.

0870. Seminar in Motivation Theory and Research. Cr. 4 (Max. 8).

Prereq: PSY 0420; written consent of instructor. Review and evaluation of developments within some principal segments of current literature on motivation. Segments will vary.

0872. Seminar in Cognitive Processes. Cr. 4 (Max. 12).

Prereq: written consent of instructor. Literature on concept formation, problem solving, thinking, aphasia, other language functions. Content varies.

0874. Seminar in Psychological Measurement and Statistics.
Cr. 4 (Max. 12).

Prereq: PSY 0717. Problems in scaling, statistical analysis of learning data, multivariate analysis, mathematical models in psychology, related topics. Content varies.

0876. Seminar in Clinical Psychology (CRJ 0876). Cr. 1-4
(Max. 12).

Prereq: written consent of instructor. Survey of current research. Topics to be announced in Schedule of Classes.

0878. Seminar in Sensory Processes. Cr. 4 (Max. 12).

Prereq: PSY 0606 and written consent of instructor. Current research in some specific area of sensory processes may include physiological basis of vision, or of audition; use of animals in sensory research; signal detection; auditory and visual psychophysics.

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

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Cr. 2-16.

Prereq: consent of doctoral adviser.



ROMANCE AND GERMANIC LANGUAGES AND LITERATURES

Office: 487 Speech and Language Building

Chairman: Gordon B. Ray

Academic Services Officer: Mary Hoffiz

Professors

Vincent C. Almazan, Ph.D., Benjamin B. Ashcom, Ph.D. (Emeritus), Harold A. Basilius, Ph.D. (Emeritus), Fernande Bassan, *Docteur es Lettres*, Henry N. Bershas, Ph.D., George P. Borglum, Ph.D. (Emeritus), Jose F. Cirre, M.A., Manuela M. Cirre, Ph.D., Carl O. Colditz, Ph.D. (Emeritus), Horst S. Daemmrich, Ph.D., †Armand L. DeGaetano, Ph.D., †H. Linn Edsall, Ph.D., Penrith B. Goff, Ph.D., Diether H. Haenicke, Ph.D., Jackson Mathews, Ph.D. (Emeritus), Dominic L. Pucci, Ph.D. (Emeritus), Gordon B. Ray, Ph.D., Jacques L. Salvan, Ph.D. (Emeritus), E. Burrows Smith, Ph.D.

Associate Professors

Vladimir Bezdek, Ph.D., Achim Bonawitz, Ph.D., Alyce de Kuehne, Ph.D., Andrea di Tommaso, Ph.D., †Blanche E. Goodell, Ph.D. (Emeritus), Louise M. Jefferson, Ph.D., Hermann D. Poster, Ph.D., Sol Rossman, Ph.D., Bernard V. Valentini, Ph.D. (Emeritus), Richard Vernier, Ph.D.

Assistant Professors

Esther Azzario, Ph.D., Angela Briefs, Dr.rer.nat., Joseph D. Crivelli, Ph.D., Erhard Dabringhaus, Ph.D., Uwe K. Faulhaber, Ph.D., Armando D. Grant, Ph.D., Charlotte Lemke, M.A., Leonor E. McAlpine, M.A., Christian Naour, *Agregation*, Earl A. Resweber, M.A. (Emeritus), Maria C. Roth, Ph.D., Gary E. Scavnicky, Ph.D., Donald C. Spinelli, Ph.D., A. Monica Wagner, Ph.D.

Instructors

Margrit Bickelman, M.A., Tonino Corsetti, M.A., E. Frank Di Amico, M.A., Gisela Hale, Ph.D., John C. Reed, M.A., Aida Rivas, M.A., Emily Spinelli, Ph.D., Stana Sukunda, M.A., Marisa M. Taylor, M.A., Steven M. Taylor, M.A.

Director of Foreign Language Laboratories

Farouk Alameddine, M.A.

DEGREE PROGRAMS

Bachelor of Arts — with a major in French, German, Italian, or Spanish

Master of Arts — with a major in French, German, Italian, or Spanish

Doctor of Philosophy — with a major in modern languages

† Deceased

FOREIGN LANGUAGE GROUP REQUIREMENT

(See page 190).

The student may satisfy the requirement by passing the first four courses in one language or by a special placement examination.

Courses — The student should elect his chosen language as early as possible and continue it without interruption. The courses numbered 0101, 0102, 0103 and 0201 are essentially a continuum designed to give the student command of the basic elements of the language. The "target" language is the preferred language of the classroom. There are several hour examinations in each course; group finals are given. Most of the structural and textual materials are recorded on tape by speakers of native fluency and are available to students in the Foreign Language Laboratory. The learning of a foreign language requires: (a) regular class attendance; (b) class participation; (c) two hours of concentrated study for each hour in class; (d) laboratory attendance. Frequent short visits to the laboratory are preferable to occasional long cramming sessions.

Placement — Students who wish to continue the study of a language begun in high school or in another college must take a placement test before registering. Examinations are scheduled by appointment at the Counselling and Testing Bureau, 343 Mackenzie Hall. A small fee is charged. Students who fail to take the placement test will not be permitted to elect any course in that language. With a normal placement score, the student should not expect to repeat previous work (one high school unit equals four credits). However, students with one high school unit whose placement indicates need for review may elect 0101 for credit; students with three high school units who need review may elect 0150 for credit. Students who achieve advanced placement may earn credit by examination for the courses beyond which they have placed. Students with a sufficiently high placement score will be deemed to have satisfied the Foreign Language Group Requirement.

HUMANITIES GROUP REQUIREMENT

(See page 191).

Literature courses in any language may be elected in satisfaction of the requirement. Literature courses in French, German, Italian and Spanish regularly open to freshmen and sophomores are numbered 0260, 0360, 0361, 0362, 0363, 0460 and 0470. Literature courses primarily designed for juniors and seniors are on the 0600 level. See individual course listings for prerequisites. All courses listed as "Literature in Translation" may be elected in satisfaction of the humanities requirement.

BACHELOR OF ARTS

Students who wish to major in one of the programs offered by the department should consult with the adviser for that program as soon as possible. The department secretary will

arrange an interview with the appropriate adviser upon the student's request.

Combined Curriculum for Secondary Teaching — Students who are preparing to teach French, German, Italian, or Spanish in the secondary schools and who wish to obtain a B.A. degree with a major in one of these languages must complete the appropriate major as defined below. Information regarding this curriculum is on page 196.

Cognate Courses — All majors in the fields covered by the department are required to take a minimum of two courses in English or American literature. They are urged to take as much work as possible in the literatures of other languages, both ancient and modern, as well as in history, philosophy, linguistics, art and music.

Major Requirements in French — A major in French must take all French courses on the 0300 level, French 0510 or 0511, 0520, 0530, 0640, and sixteen credits in literature courses on the 0600 level representing three of the following groups and four if possible:

Group A — Sixteenth Century

Group B — Seventeenth Century

Group C — Eighteenth Century

Group D — Nineteenth Century

Group E — Poetry from Baudelaire to the Present, Twentieth Century Novel and Theater.

Group F — French Civilization

French majors are required to take at least one course in philosophy (normally Philosophy 0201).

Major Requirements in German — A major in German must take German 0310 or 0320, 0360, one course in literary genre (0361 or 0362), 0460, 0510 or 0511, 0655 and four courses in literature on the 0600 level. German majors are required to take History 0564 or 0565.

Junior Year in Munich or Freiburg — With the approval of the department, majors may take their junior year abroad in any one of the supervised intercollegiate junior year programs. (See Junior Year in Munich or Freiburg.)

Major Requirements in Italian — A major in Italian must take Italian 0310, 0460, 0510 or 0511, 0530, 0663 or 0664, 0671, 0672, 0673, 0674, 0681 or 0682 and at least three other courses on the 0600 level. Italian majors are required to take History 0538 or one of the following: Art History 0551; History 0537; Humanities 0527; Philosophy 0302, 0370.

Major Requirements in Spanish — A major in Spanish must take Spanish 0460 and 0470, one of which must be taken by the end of the student's first quarter as a major, and the other by the end of his first year as a major. Spanish 0310 or 0510, 0520, 0530 or 0540, and 0645 or 0646 are also required. The student must earn twelve credits in period courses numbered 0660 to 0667, to be distributed as follows: four from 0660, 0661, 0662; four from 0663, 0664, 0665; four from 0666, 0667. Finally he must earn eight credits in courses from Spanish 0668 to 0689.

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-four credits in course work plus an essay.

Plan C — Forty-eight credits in course work.

Students envisaging a teaching career on the college level or intending to continue to the doctorate may elect either Plan A or Plan B. Plan C, at present available only in French, is intended primarily for those interested in teaching on the elementary and secondary school levels. Plan C participants should keep in mind that if at a later date they decide to go on to a doctorate, they may find themselves lacking in entrance requirements and some of the work they have done may not be applicable to the doctoral program.

Admission to any of the programs must be approved by the appropriate graduate adviser. The applicant must have an adequate undergraduate major or the equivalent in the area in which he wishes to take his degree. He should also have reasonable proficiency in speaking and writing the language which constitutes his major field of interest. Students in French, Italian and Spanish under Plans A or B should have or plan to acquire a working knowledge of Latin.

Candidacy must be established by the time sixteen credits have been earned.

Degree Requirements — All courses must be approved by the student's major adviser.

Under Plans A and B:

1. Candidates in French are required to take French 0690, 0730 and 0751. No more than six credits in work on the 0500 level may be counted toward the degree. Candidates may choose to concentrate in either French literature or French linguistics.
2. Candidates in Spanish are required to take Spanish 0640, 0730 and 0740.
3. Candidates in German are required to take German 0751 and 0752.
4. Candidates in Italian are required to take Italian 0730. No more than six credits in work on the 0500 level may be counted toward the degree.
5. At least five weeks prior to the time the degree is to be granted, all candidates must pass a comprehensive oral examination.

Under Plan C:

(This plan is available to French candidates only.)

1. French 0510, 0520, 0530, 0640, 0645, and 0720 are required. However, any part of this requirement may be waived by the graduate adviser if he judges it has been properly satisfied in earlier study.
2. A minimum of sixteen credits of French literature in courses on the 0600 level or higher is also required and at

least four of these credits must be in courses numbered above 0800.

3. With the consent of the candidate's adviser, up to twelve credits may be elected in cognate fields.

4. On completion of their course work, candidates will be required to demonstrate a superior command of written and oral French. They will, moreover, be subjected to a final oral examination to test their ability to integrate their knowledge of the French language and culture and those aspects of French literature in which they have had course work.

DOCTOR OF PHILOSOPHY

With a major in modern languages

See the Graduate Division section of this bulletin and the "Graduate Academic Regulations" section for the College of Liberal Arts.

Candidates may fulfill the requirements for the degree of Doctor of Philosophy with a major specialization in one modern language and a minor in another. Major programs are offered in French, German, and Spanish and minor programs in French, German, Italian, Russian, and Spanish.

Admission — The application for admission and transcripts of all previous college work should be filed in the Graduate Division at least three months in advance of the time the applicant plans to register. A letter giving information on his educational background, experience, objectives, oral fluency in the language of proposed major concentration and other data of interest to an evaluating committee should be sent by the applicant as soon as possible to the Chairman of the Department of Romance and Germanic Languages and Literatures.

Prerequisites are as follows:

1. Bachelor of Arts degree in the language of the proposed major field of concentration.
2. Approximately thirty credits of studies in the language of the proposed minor field of concentration.
3. A working knowledge of Latin. This requirement may be waived for students whose field of major concentration is German.
4. The doctoral candidate must pass a Ph.D. reading examination in one language other than those of his major and minor fields. The students whose major and minor are both in the Romance field must take this examination in a non-Romance language approved by the department.

Course Requirements — A minimum of fifty-four credits on the graduate level in the field of major concentration, twenty-four credits in one minor field, and twelve credits in cognate courses. Course requirements for M.A., plans A and B, apply in major concentration.

Qualifying Examinations — Within a reasonable time after the completion of all course work, students are required pass extensive examinations, both written and oral, in t

major and minor fields. Later, after the dissertation has been completed, a final oral presentation and defense of it is also required.

COURSES OF INSTRUCTION¹

French (FRE)

0101. Elementary French. Cr. 4.

Training in pronunciation, aural comprehension, oral and written expression. Supervised laboratory period for part of class preparation.

0102. Elementary French. Cr. 4.

Prereq: FRE 0101 or placement. Continuation of French 0101.

0103. Elementary French. Cr. 4.

Prereq: FRE 0102 or placement. Continuation of French 0102.

0150. Intensive Review of French. Cr. 4.

No credit after first year college French. Prereq: placement or consent of department. Open only to students who need review work after three years of high school French. Review of the materials of French 0101, 0102, 0103.

0199. Comprehensive Elementary French. Cr. 12.

No credit after first year college French or French 0150. Concentrated study of first year elementary French.

0201. Intermediate French. Cr. 4.

Prereq: FRE 0103 or 0150 or placement. Continuation of French 0103.

0208. Informal French Conversation. Cr. 1.

Prereq: FRE 0101 or equiv. Does not count toward fulfillment of foreign language group requirement. No credit for French majors. Offered for S and U grades only. Informal conversation.

0210. Intermediate French: Speaking and Writing. Cr. 4.

No credit after former French 0202 or 0203. Prereq: FRE 0201 or placement. Special attention to development of language skills. Conducted entirely in French; discussion will be based on reading from contemporary materials.

0260. Intermediate French: Readings in French Literature. Cr. 4.

No credit after former French 0203. Prereq: FRE 0201 or 0210 or placement. Masterpieces from the seventeenth century to the present.

0310. Language Skills: Speaking and Writing. Cr. 4.

Prereq: FRE 0210 or placement.

0361. Survey of French Literature I. Cr. 4.

Prereq: FRE 0260 or placement. Principal literary movements, readings from representative writers.

0362. Survey of French Literature II. Cr. 4.

Prereq: FRE 0260 or placement. Continuation of French 0361.

0363. Survey of French Literature III. Cr. 4.

Prereq: FRE 0260 or placement. Continuation of French 0362.

0510. Language Skills: Advanced Speaking and Writing. Cr. 4.

Prereq: FRE 0310 or equiv.

0511. French Laboratory Theater. (0,8). Cr. 4 (Max. 12).

Prereq: consent of instructor. Will not count toward satisfaction of Foreign Language group requirement. Rehearsal and public performance of a full-length play or group of one-act plays. Several roles as performer and understudy. Grades based on diction and interpretation.

0520. Language Skills: Phonetics and Diction. Cr. 4.

Prereq: FRE 0310 or equiv.

0530. Advanced Composition. Cr. 4.

Prereq: FRE 0510 or 0511 or consent of department.

0640. The Structure of French. Cr. 4.

Prereq: FRE 0520 or consent of instructor. Principles of linguistics and their application to French.

0645. French Civilization. Cr. 4.

Prereq: FRE 0363 or equiv. Introduction to French history, society, institutions and culture; emphasis on interrelation of cultural trends in French art and thought.

0651. Renaissance I (1500-1550). Cr. 4.

Prereq: FRE 0363. Rabelais, Marot, Scève, and others.

0652. Renaissance II (1550-1600). Cr. 4.

Prereq: FRE 0363. Montaigne, Ronsard, du Bellay, and others; the theatre.

0663. Classicism I. Cr. 4.

Prereq: FRE 0363. Historical background, religious and literary movements in the seventeenth century. Development of the classical ideal in non dramatic literature, salons, academies. Representative authors from Descartes to La Bruyere.

0664. Classicism II. Cr. 4.

Prereq: FRE 0363. Seventeenth century theater; mainly: Corneille, Moliere, and Racine.

0665. The Enlightenment I (1700-1750). Cr. 4.

Prereq: FRE 0363. Philosophy, novel and drama. Bayle, Fontenelle, Montesquieu, Marivaux, early works of Voltaire.

0666. The Enlightenment II (1750-1800). Cr. 4.

Prereq: FRE 0363. Philosophy, novel and drama. Diderot, Rousseau, Beaumarchais, later works of Voltaire.

0677. Studies in French Literature. Cr. 4 (Max. 12).

Prereq: FRE 0363. Works of an outstanding writer or of a literary movement.

0681. Nineteenth Century I (1800-1850). Cr. 4.

Prereq: FRE 0363. Romanticism and pre-realism. Prose, poetry and drama. Chateaubriand, Lamartine, Hugo, Balzac, and others.

0682. Nineteenth Century II (1850-1900). Cr. 4.

Prereq: FRE 0363. Realism, naturalism, novel and theater: Flaubert, Zola, Becque, and others. Parnassian poetry: Leconte de Lisle.

¹ page 536 for interpretation of numbering system, signs and abbreviations.

0683. Poetry from Baudelaire to the Present. Cr. 4.

Prereq: FRE 0363. Baudelaire, Apollinaire, Valery, the dada and surrealist movements. Saint-John Perse, and others.

0684. Twentieth Century I. Cr. 4.

Prereq: FRE 0363. Novel: Gide, Proust, Mauriac, Saint-Exupery, Malraux, Camus, Sartre, Robbe-Grillet, or others.

0685. Twentieth Century II. Cr. 4.

Prereq: FRE 0363. Drama: Giraudoux, Anouilh, Camus, Sartre, Ionesco, Beckett, or others.

0690. French Bibliography and Research Methods. Cr. 4.

Prereq: two French literature courses on the 0600 level. Open to seniors. Orientation in research. Introduction to bibliographical problems. Methodology for papers, essays and dissertations.

0720. Advanced Diction and Oral Interpretation. Cr. 4.

Prereq: FRE 0520 or equiv. or consent of instructor. Developing of poise and confidence in speaking and interpretative reading in French and improving pronunciation, enunciation, articulation and intonation. "Explication de textes," prose, poetry, drama. Study of rhythm, versification. Texts of representative authors from Villon to the present.

0730. Introduction to Romance Philology (SPA 0730) (ITA 0730). Cr. 4.

Prereq: graduate major in French, Italian or Spanish or consent of department. Historical development and earliest texts in the Romance languages: Latin substrata, historical diffusion, Vulgar Latin, linguistic borrowings, classification and characteristics of the various Romance languages.

0732. Studies in French Language. Cr. 4 (Max. 12).

Prereq: FRE 0640 or 0730 or consent of instructor. Topics to be announced in Schedule of Classes.

0750. History of the French Language. Cr. 4.

No credit after former French 0641. Prereq: FRE 0730 or consent of instructor. Development of the language from its origins to the present day.

0751. Old French. Cr. 4.

Prereq: FRE 0730. Required of French majors. Phonology, morphology, early medieval texts. (Formerly French 0841).

0752. Medieval Literature. Cr. 4.

Prereq: FRE 0841. Readings representative of the literature of the Old French period. (Formerly French 0861).

0842. Seminar in the French Language. Cr. 4 (Max. 12).

Prereq: FRE 0640 or 0750. Special problems in synchronic and diachronic aspects of the French Language.

0870. Seminar in Old French. Cr. 4 (Max. 12).

Prereq: FRE 0752 or consent of instructor. Specified aspect, movement, author, or group of authors.

0871. Seminar in the French Renaissance. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

0872. Seminar in French Classicism. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, author, or group of authors.

0873. Seminar in the Enlightenment. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

0874. Seminar in Nineteenth Century Literature. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, movement, author or group of authors.

0875. Seminar in Twentieth Century Literature. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, movement, author or group of authors.

Special Courses

0090. French for Ph.D. Reading Requirement. 6 hours.

No degree credit. Offered for S and U grades only.

0590. Directed Study. Cr. 1-4.

Undergraduate prereq: consent of the chairman, director and the adviser, Graduate prereq: consent of the chairman, director and graduate officer.

0796. Research Project. Cr. 1-4.

Prereq: consent of the chairman, director, graduate adviser.

0799. Master's Essay Direction. Cr. 2-4 (3 required).

Prereq: consent of adviser.

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

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

German (GER)

0101. Elementary German. Cr. 4.

Development of ability to speak and read German.

0102. Elementary German. Cr. 4.

Prereq: GER 0101 or placement. Continuation of German 0101.

0103. Elementary German. Cr. 4.

Prereq: GER 0102 or placement. Continuation of German 0102. Written composition.

0150. Intensive Review of German. Cr. 4.

No credit after first year college German. Prereq: placement or consent of department. Open only to students who need review after three years of high school German. Review of the material of German 0101, 0102, 0103.

0199. Comprehensive Elementary German. Cr. 12.

No credit after first year college German or German 0150. Concentrated study of first year elementary German.

0201. Intermediate German. Cr. 4.

Prereq: GER 0103 or 0150 or placement. Continuation of Ger

0103. Reading of ungraded German literature and grammar review. Outside reading required for German 0201 through German 0205.

0204. Intermediate German. Cr. 4.

Prereq: GER 0201 or equiv. Readings in German scientific literature.

0205. Intermediate German. Cr. 4.

Prereq: GER 0201 or equiv. Readings in German chemical literature.

0210. Intermediate German: Speaking and Writing. Cr. 4.

Prereq: GER 0201 or placement. Special attention to development of language skills. Conducted entirely in German; discussion will be based mainly on reading from contemporary materials.

0260. Intermediate German: Readings in Modern German Literature. Cr. 4.

Prereq: GER 0201 or 0210 or placement. Major German authors such as Kafka, Brecht and Duerrenmatt.

0310. Intermediate Oral and Written Composition I. Cr. 4.

Prereq: GER 0210 or placement. German of common usage. Practical approach to contemporary idioms.

0320. Intermediate Oral and Written Composition II. Cr. 4.

Prereq: GER 0210 or placement. German of common usage. Practical approach to contemporary idioms.

0360. Introduction to German Literature. Cr. 4.

Prereq: GER 0260 or placement.

0361. Literary Genres I: The German Novelle. Cr. 4.

Prereq: GER 0260 or placement.

0362. Literary Genres II: The German Drama. Cr. 4.

Prereq: GER 0260 or placement.

0460. Goethe. Cr. 4.

Prereq: GER 0360. Early works and "Faust: Part I."

0510. Advanced Composition and Conversation. Cr. 4.

Prereq: GER 0310 or 0320 or equiv. Emphasis is placed on increasing the student's oral and written command of German. Detailed study of modern German syntax.

0511. German Laboratory Theatre. (0,8). Cr. 4 (Max. 12).

Prereq: consent of instructor; does not count toward fulfillment of foreign language group requirement. Rehearsal and public performance of a full-length play or group of one-act plays. Several roles as performer and understudy. Grades based on diction and interpretation.

0520. Phonetics and Diction. Cr. 4.

Prereq: GER 0310 or 0320 or equiv. No credit for native speakers of German. Phonetic and phonological structure of standard modern German speech. Theory and practice.

0640. Structure of German. Cr. 4.

Prereq: GER 0510 or 0511. Principles of linguistics and their application to German. Conducted in English.

0655. German Civilization. Cr. 4.

Prereq: consent of instructor. Conducted in German. Interrelation of cultural trends in German art and thought.

Prerequisite to all 0600 level courses in German literature: German 0360 and 0361 or 0362 or equivalent.

0661. German Lyric Poetry. Cr. 4.

Historical survey of German lyric poetry from the Baroque to the twentieth century; the tools and methods of interpretation.

0662. Bibliography and Methodology of Literary Research. Cr. 4.

0663. Problems in German Literary and Aesthetic Theory (HON 0487). Cr. 4.

Major critics or criticism of a period, analyses of texts and ideas of a specific period, and the systematic investigation of important aesthetic questions.

0664. Early Works of Goethe and Schiller. Cr. 4.

Introduction to the Storm and Stress movement and the most important early works of Goethe and Schiller.

0665. Romanticism I. Cr. 4.

Philosophical and aesthetical foundations of German Romanticism.

0666. Romanticism II. Cr. 4.

Late Romanticism: Brentano, Arnim, Hoffman, Fouque, Chamisso.

0667. German Literature in the Nineteenth Century I. Cr. 4.

Junges Deutschland; Heine, Buechner, Grabbe, Hebbel; the poetry of Droste-Huelshoff.

0668. German Literature in the Nineteenth Century II. Cr. 4.

Prose of realism: Stifter, Keller, Meyer, Gotthelf, Storm, Raabe, Fontane; the historical novel; exotic literature; regional writers; and women novelists.

0669. Early German Literature. Cr. 4.

From the beginning through the Reformation.

0670. The Barock. Cr. 4.

Historical survey of poetry, "lied," and poetics; seventeenth century mysticism and foundations of "Pietismus;" the Jesuit drama and the secular drama; the novel.

0672. The German Enlightenment. Cr. 4.

Lessing; "Sturm und Drang."

0673. Weimar Classicism. Cr. 4.

Goethe, Schiller.

0675. Kleist, Hoelderlin, Grillparzer. Cr. 4.

0677. German Literature from 1885 to 1930. Cr. 4.

0678. German Literature since 1930. Cr. 4.

0679. Studies in German Literature. Cr. 4 (Max. 12).

A major author, genre, or literary movement. Topics to be announced in Schedule of Classes.

0680. Thomas Mann. Cr. 4

0710. Advanced Composition and Stylistics. Cr. 4.

Different levels of style in modern German and earlier literary periods. Composition in modern German.

0751. Introduction to the History of the German Language and Historical Grammar. Cr. 4.

0752. Middle High German Language. Cr. 4.

0754. The Middle High German Lyric. Cr. 4.

Prereq: GER 0752. Selections from the poems of Heinrich von Morungen, Reinmar von Hagenau, Walther von der Vogelweide, and Neidhart von Reuenthal.

0755. The Middle High German Epic. Cr. 4.

Prereq: GER 0752. Hartmann's "Der arme Heinrich," the "Nibelungenlied," and Wernher's "Helmbrecht" in their entirety, and selections from "Iwein," "Parzival," and "Tristan und Isolt."

0756. Gothic. Cr. 4.

Prereq: GER 0752. Selections from the "Codex Argenteus" serve as a basis for study of linguistic aspects of Gothic. Phonology and morphology are treated historically and in the light of the structuralist research of today.

0757. Old High German. Cr. 4.

Prereq: GER 0756. Selected texts from the main dialects (Bavarian, Alemannic, Franconian) will serve to present a unifying image of the period. Individual study and reports.

0758. Old Saxon. Cr. 4.

Prereq: GER 0756. Linguistic structure of the Old Saxon language and its relation to other Germanic languages. Extensive readings from the Old Saxon epic "Heliand" and the "Genesis."

0868. Seminar in Older German Literature. Cr. 4 (Max. 12).

Prereq: GER 0754 or 0755. Topics to be announced in Schedule of Classes.

0869. Seminar in Seventeenth Century Literature. Cr. 4 (Max. 12).
Topics to be announced in Schedule of Classes.

0870. Seminar in the German Language. Cr. 4 (Max. 12).

Prereq: GER 0752.

0871. Goethe Seminar. Cr. 4 (Max. 12).

0875. Seminar in Eighteenth Century Literature. Cr. 4 (Max. 12).

0876. Seminar in Nineteenth Century Literature. Cr. 4 (Max. 12).
Specified aspect, movement, author or group of authors.

0877. Seminar in Twentieth Century Literature. Cr. 4 (Max. 12).

Specified aspect, movement, author or group of authors.

Special Courses

0090. German for Ph.D. Reading Requirements. 6 hours.

No degree credit. Offered for S and U grades only.

0590. Directed Study. Cr. 1-4 (Max. 8).

Undergrad. prereq: consent of German adviser; grad. prereq: consent of German adviser and graduate officer.

0701. Problems and Methods of Teaching German on the College Level. Cr. 4.

Prereq: completion of undergraduate major in German.

0796. Research Project. Cr. 1-4 (Max. 6).

Prereq: consent of German adviser.

0799. Master's Essay Direction. Cr. 2-4 (3 required).

Prereq: consent of German adviser.

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

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Italian (ITA)

0101. Elementary Italian. Cr. 4.

Ear training, grammar, reading, writing, speaking; emphasis on ability to speak and read Italian.

0102. Elementary Italian. Cr. 4.

Prereq: ITA 0101 or placement. Continuation of Italian 0101.

0103. Elementary Italian. Cr. 4.

Prereq: ITA 0102 or placement. Continuation of Italian 0102. Composition, conversation, reading of modern prose.

0201. Intermediate Italian. Cr. 4.

Prereq: ITA 0103 or placement. Grammar review. Composition, conversation, reading, discussion of contemporary problems.

0210. Intermediate Italian: Speaking and Writing. Cr. 4.

Prereq: ITA 0201 or placement. Special attention to development of language skills. Conducted entirely in Italian; discussion will be based on readings relevant to contemporary problems.

0260. Intermediate Italian: Readings in Modern Italian Literature. Cr. 4.

Prereq: ITA 0201 or 0210 or placement. Contemporary writers. Cultural survey of modern Italy.

0310. Italian Conversation. Cr. 4.

Prereq: ITA 0210 or placement. Impromptu and extemporaneous conversation based on current topics and reading materials.

0460. Introduction to the Reading of Italian Literature. Cr. 4.

Prereq: ITA 0260 or consent of department. Intensive readings from authors of the thirteenth, fourteenth and fifteenth centuries.

0510. Advanced Italian Conversation and Composition. Cr. 4.

Prereq: ITA 0310 or placement. Phonetics, diction and improvement of pronunciation.

0511. Italian Laboratory Theatre. (0,8). Cr. 4 (Max. 12).

Prereq: consent of instructor; does not count toward fulfillment of foreign language group requirement. Rehearsal and public performance of a full length play or group of one-act plays. Several roles as performer and understudy. Grades based on diction and interpretation.

0530. Advanced Composition. Cr. 4.

Prereq: ITA 0510 or placement. Stress on clarity, fluency, elegant creative writing. Stylistic comparison of authors and genres.

0663. Nineteenth Century Italian Literature. Cr. 4.
Prereq: ITA 0460 or consent of department. From Foscolo through Verga.

0664. Twentieth Century Italian Literature. Cr. 4.
Prereq: ITA 0460 or consent of department. From D'Annunzio to the present.

0669. Early Italian Literature. Cr. 4.
Prereq: ITA 0460 or consent of department. "The Duecento" and the "Dolce stil nuovo," minor writers of the "Trecento."

0671. Italian Literature of the Renaissance: The Quattrocento. Cr. 4.
Prereq: ITA 0460 or consent of department. Humanism, concept of the dignity of man, polemics in Latin vs. Italian, related problems. Petrarca, Boccaccio, chivalric poetry, other representative writings of fourteenth and fifteenth centuries. Conducted in Italian.

0672. Italian Literature of the Renaissance: The Cinquecento. Cr. 4.
Prereq: ITA 0460 or consent of department. Continuation of Italian 0671. Rise of the vernacular academics, the literary critics, the Counter-Reformation. Machiavelli, Castiglione, Ariosto, Tasso, and other representative writers; prose and poetry.

0673. Dante I. Cr. 4.
Prereq: ITA 0460 or consent of department. The "Vita Nuova," "Convivio," "De vulgari eloquentia." Some attention to Dante's other works in Italian.

0674. Dante II. Cr. 4.
Prereq: ITA 0460 or consent of department. The "Divina Commedia."

0675. Dante III. Cr. 4.
Prereq: ITA 0460 or consent of department. The "Divina Commedia." Continuation of Italian 0674.

0677. Studies in Italian Literature. Cr. 4 (Max. 12).
Prereq: consent of department. Works of an outstanding writer or of a literary movement. Topics to be announced in Schedule of Classes.

0680. The Theatre from the Renaissance through Alfieri. Cr. 4.
Prereq: ITA 0460 or consent of department. Origin of the theatre; the "sacra rappresentazione;" comedies and tragedies; the "commedia dell'arte."

0681. Seicentismo. Cr. 4.
Prereq: ITA 0460 or consent of department. Origin; reciprocal Baroque influences among European countries; the Mock Epic and other literary productions of the seventeenth century.

0682. From the Arcadia to the Rinnovamento. Cr. 4.
Prereq: ITA 0460 or consent of department. "Illuminismo," history, scholarship, journalism, and literary criticism during the eighteenth century. Neoclassic tendencies; satire; didactic poetry.

0730. Introduction to Romance Philology. (FRE 0730) (SPA 0730). Cr. 4.
Prereq: graduate major in French, Italian or Spanish or consent of department. Historical development and earliest texts in the Romance languages: Latin substrata, historical diffusion, Vulgar Latin, linguistic borrowings, classification and characteristics of the various Romance languages.

0870. Seminar in Italian Studies. Cr. 4 (Max. 12).
Prereq: graduate major in Italian or consent of department. Problems of research in connection with a central figure (Dante, Petrarch, Boccaccio, etc.), a dominant literary current, or various genres. Topic to be announced in Schedule of Classes.

Special Courses

0590. Directed Study. Cr. 1-4 (Max. 8).
Undergrad. prereq: consent of adviser and chairman; grad. prereq: consent of adviser, chairman and graduate officer.

0796. Research Project. Cr. 1-4.
Prereq: consent of Italian adviser.

0799. Master's Essay Direction. Cr. 2-4 (4 required).
Prereq: consent of Italian adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).
Prereq: consent of adviser.

Portuguese (POR)

These courses are designed for relatively advanced students who have already demonstrated some ability in related languages. Courses in Portuguese may not be elected in satisfaction of the foreign language group requirement.

†0501. Elements of Portuguese. Cr. 4.
Prereq: 2 years of college work in a Romance language or in Latin, or consent of chairman. An accelerated introductory course in the Portuguese language.

†0502. Readings in Modern Portuguese. Cr. 4.
Prereq: POR 0501 or consent of chairman. Representative texts from the Portuguese literature of the nineteenth and twentieth centuries.

†0503. Early Portuguese. Cr. 4.
Prereq: POR 0502 or consent of chairman. Rise and development of the Portuguese language and literature from the beginning to Camoes.

Spanish (SPA)

0101. Elementary Spanish. Cr. 4.
Ear training, grammar, reading, writing, speaking.

0102. Elementary Spanish. Cr. 4.
Prereq: SPA 0101 or placement. Continuation of Spanish 0101.

0103. Elementary Spanish. Cr. 4.
Prereq: SPA 0102 or placement. Continuation of Spanish 0102.

0150. Intensive Review of Spanish. Cr. 4.
No credit after first year college Spanish. Prereq: placement or consent of department. Open only to students who need review

work after three years of high school Spanish. Review of the materials of Spanish 0101, 0102, 0103.

0199. Comprehensive Elementary Spanish. Cr. 12.

No credit after first year college Spanish or Spanish 0150. Concentrated study of first year elementary Spanish.

0201. Intermediate Spanish. Cr. 4.

Prereq: SPA 0103 or 0150 or placement. Grammar review. Emphasis on composition, reading, conversation.

0210. Intermediate Spanish: Speaking and Writing. Cr. 4.

No credit after former Spanish 0202 or 0203. Prereq: SPA 0201 or placement. Increasing ability in the spoken language. Conducted entirely in Spanish, this course provides opportunity for oral reports based on readings from current Spanish and Spanish American newspapers, magazines, essays, and criticism.

0260. Intermediate Spanish: Readings in Modern Spanish Literature. Cr. 4.

No credit after former Spanish 0203. Prereq: SPA 0201 or 0210 or placement. Works from Spain and Spanish America.

0310. Conversation and Composition. Cr. 4.

Prereq: SPA 0210 or placement. Spanish of common usage. Practical approach to contemporary idiom. Conducted in Spanish.

0460. Theme and Form: A Survey I. Cr. 4.

Prereq: SPA 0260 or placement. Spanish literature to 1700.

0470. Theme and Form: A Survey II. Cr. 4.

Prereq: SPA 0260 or placement. Continuation of Spanish 0460. 1700 to the present.

0510. Advanced Conversation and Composition. Cr. 4.

Prereq: SPA 0310 or placement.

0511. Spanish Laboratory Theater. (0,8). Cr. 4 (Max. 12).

Prereq: consent of instructor; may not be used toward fulfillment of the foreign language group requirement. Rehearsal and public performance of a full-length play or group of one-act plays. Several roles as performer and understudy. Grades based on diction and interpretation.

0520. Spanish Phonetics. Cr. 4.

Prereq: SPA 0310 or consent of department. A systematic study of Spanish sounds; intensive drill in accurate pronunciation.

0530. Diction and Stylistics I. Cr. 4.

Prereq: SPA 0310 or placement. Intensive study of grammar and syntax. Translation of literary texts into Spanish. Free composition. Conducted in Spanish.

0540. Diction and Stylistics II. Cr. 4.

Prereq: SPA 0310 or placement. Intensive study of grammar and syntax. Translation of literary texts into Spanish. Free composition. Conducted in Spanish.

0640. The Structure of Spanish. Cr. 4.

Prereq: SPA 0520 or consent of department. Principles of linguistics and their application to Spanish.

0645. Society, Institutions and Culture of Spain. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Introduction to Spanish civilization; interrelation of cultural trends in Spanish art and thought.

0646. Society, Institutions and Culture of Spanish America. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Introduction to Hispano-American civilization.

0660. The Medieval Synthesis: Origins to 1492. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Main currents in Hispanic literary history from beginnings to era of Fernando and Isabel.

0661. Renaissance and Humanism: 1492-1588. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Emergence of the individual: men and ideas of Spanish Renaissance.

0662. Baroque and Rococo: 1588-1700. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Golden Age of Spanish letters and its decline.

0663. Reason and Revolt: 1700-1849. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Neo-Classic period and Romantic Revolution.

0664. Realism and After: 1849-1920. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Nineteenth century and its projection into the twentieth.

0665. Age of Abstraction: 1920 to the Present. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. War of ideas: main currents in Hispanic cultural history.

0666. Hispanoamerica: 1492-1888. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Literature of Colonial Period and Republics up to Modernism.

0667. Hispanoamerica: 1888 to the Present. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Modernism and the Contemporaries.

0668. Studies in Hispanic Literature. Cr. 4 (Max. 12).

Prereq: SPA 0460 or 0470 or consent of department. Variable subjects: writers, themes, movements. Topics to be announced in Schedule of Classes.

0671. The Generation of 1898. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Leading figures of the generation of 1898: Unamuno, Baroja, Azorin, Antonio Machado, Benavente, Valle-Inclan.

0677. The Novel in Hispanoamerica I. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. The nineteenth century novel. The novel of Mexican revolution, "indianista" novel, artistic novel, "criollismo," city novel, country novel.

0678. The Novel in Hispanoamerica II. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Continuation of Spanish 0677. Recent trends.

0680. The Comedia I. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Origins of drama; liturgical and secular drama in Medieval Europe; drama of pre-Lopistas. Plays of Lope de Vega and Ruiz de Alarcón.

0681. The Comedia II. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Continuation of Spanish 0680. Tirso de Molina, Calderón, minor dramatists.

0682. Cervantes I. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Detailed study of "Don Quijote." Other works.

0683. Cervantes II. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Continuation of Spanish 0682.

0684. The Novel in Spain I. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. The novel of the nineteenth century.

0685. Theatre: Yesterday and Today. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Growth from 1700 to the present.

0686. Poetry: Yesterday and Today. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Leading figures and trends.

0687. The Novel in Spain II. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. The novel of the twentieth century.

0689. Poetry in Hispanoamerica. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Leading figures and trends.

0730. (FRE 0730), Introduction to Romance Philology (ITA 0730). Cr. 4.

Prereq: graduate major in French or Italian or Spanish or consent of department. Historical development and earliest texts in the Romance languages: Latin substrata, historical diffusion, Vulgar Latin, linguistic borrowings, classification and characteristics of the various Romance languages.

0740. Old Spanish. Cr. 4.

Prereq: SPA 0730 or consent of department. Literary language in its development from the earliest texts to 1400.

0751. History of the Spanish Language. Cr. 4.

Prereq: SPA 0640 or consent of department. The Spanish language in Spain and America from the earliest days to the present.

0770. Seminar in the Middle Ages. Cr. 4 (Max. 12).

Prereq: graduate major in Spanish or consent of department.

0771. Seminar in the Golden Age. Cr. 4 (Max. 12).

Prereq: graduate major in Spanish or consent of department.

0772. Seminar in Modern Drama. Cr. 4 (Max. 12).

Prereq: graduate major in Spanish or consent of department.

0773. Seminar in Modern Prose. Cr. 4 (Max. 12).

Prereq: graduate major in Spanish or consent of department.

0774. Seminar in Poetry. Cr. 4 (Max. 12).

Prereq: graduate major in Spanish or consent of department.

0775. Seminar in Hispanoamerica Literature. Cr. 4 (Max. 12).

Prereq: graduate major in Spanish or consent of department.

0776. Seminar in Hispanic Studies. Cr. 4 (Max. 12).

Prereq: graduate major in Spanish or consent of department. Topics to be announced in Schedule of Classes.

Special Courses

0590. Directed Study. Cr. 1-6 (Max. 6).

Undergrad. prereq: consent of adviser and chairman; grad. prereq: consent of adviser, chairman and graduate officer.

0796. Research Project. Cr. 1-4 (Max. 6).

Prereq: consent of Spanish adviser.

0799. Master's Essay Direction. Cr. 2-4 (3 required).

Prereq: consent of adviser.

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

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

COURSES IN ENGLISH TRANSLATION

The following courses are conducted in English; the texts are read in English translation. No knowledge of a foreign language is presumed. These courses have no prerequisites. They may be elected in satisfaction of the Humanities Group Requirement. They may NOT be elected in satisfaction of the Foreign Language Group Requirement, nor will they count toward a major in the foreign language from which the translations are taken.

French (FRE) in English Translation

0272. Social Relevance: French Literature of Dissent. Cr. 4.

Literature of protest from the sixteenth century to the present arranged topically: religious freedom, civil liberty, social reform, education, pacifism, anti-semitism.

0273. French Literature I: Masterpieces of the Middle Ages and Renaissance. Cr. 4.

Selected readings of major genres from representative texts; background, development and significance of French literature for non-majors.

0274. French Literature II: Masterpieces of the Seventeenth and Eighteenth Centuries. Cr. 4.

A continuation of French 0273.

0275. French Literature III: Masterpieces of the Nineteenth and Twentieth Centuries. Cr. 4.

A continuation of French 0274.

0278. French Writers of the Enlightenment. Cr. 4.

Major works of Montesquieu, Voltaire, Diderot and Rousseau. Emphasis on those seminal writings which have shaped political and social institutions.

0281. Modern French Novel. Cr. 4.

The novel from Alain-Fournier to Robbe-Grillet; primary and secondary source readings, oral reports, and periodic essays.

0282. Modern French Theatre. Cr. 4.

Modern drama from Jarry to Arrabal; primary and secondary source readings, oral reports, periodic essays.

0576. Rabelais. Cr. 4.

An introduction to the art, the learning, and the joy of French Renaissance through the famous five books of Dr. Françoise Rabelais.

German (GER) in English Translation

0270. Survey of German Culture. Cr. 4.

The development of the Germanic people emphasizing major contributions of cultural significance to the Western world but also dealing with the dark sides of German history. Political and social currents of the last fifty years.

0281. Modern German Novel. Cr. 4.

Major German prose writers since 1900. Emphasis is placed upon Kafka, Hesse, Mann, but other writers and trends will be covered in lectures.

0282. Modern German Drama. Cr. 4.

Major trends from 1945 to the present. Emphasis on such authors as Bertolt Brecht, Max Frisch, Friedrich Dürrenmatt, Peter Weiss, Rolf Hochhuth.

0283. German Expressionism. Cr. 4.

A multi-media approach to the German Expressionist Movement, giving a more complete understanding than literature alone would provide.

0578. The Age of Goethe. Cr. 4.

Important works of Goethe and Schiller.

Italian (ITA) in English Translation

0275. Early Italian Poetry. Cr. 4.

Love poetry from Provençal origins to Petrarch, including Dante's youthful production. Some attention to religious and political verse. Discussion of form, including development of sonnet, sestina.

0276. Italian Literature of the Renaissance. Cr. 4.

Humanism and historical background. Petrarca, Boccaccio, Lorenzo, Poliziano, Machiavelli, Ariosto, Tasso.

0281. Modern Italian Novel. Cr. 4.

Writers who have contributed to the development of Western literature: Verga, Pirandello, Moravia; Verismo, Futurismo, Neorealismo.

0283. Modern Italian Poetry. Cr. 4.

Symbolism and twilight poetry, futurism, hermeticism, post-war and engagement.

0513. Italian Cinema. Cr. 4.

History of Italian cinema from 1895 to the present. Neorealism and post-neorealistic trends, including analysis of the work of major directors, in context of Italian political and intellectual life. Knowledge of Italian is not required.

0575. Dante's Divine Comedy. Cr. 4.

The poem as a synthesis of medieval culture, its scholastic qualities, its structure, poetic value, its relevance to Western literature.

Spanish (SPA) in English Translation

0277. Spanish Literature of the Sixteenth and Seventeenth Centuries. Cr. 4.

The "Celestina" and the transition from the Middle Ages to the Renaissance. Garcilaso and the Italianate lyric. "Lazarillo de Tormes" and the later picaresque. Gongora and "culteranismo." Golden Age drama: Lope de Vega, Calderon.

0281. Modern Spanish Prose. Cr. 4.

Representative works by authors such as Galdos, Unamuno, Ortega y Gasset, Blasco Ibanez, Cela Goytisolo, Delibes.

0282. Modern Spanish Theatre. Cr. 4.

Selected plays of Echegaray, Tamayo, Benavente, Garcia Lorca, Buero Vallejo.

0286. Modern Spanish American Literature. Cr. 4.

Readings from leading prose writers (Asturias, Carpentier, Cortazar, Borges); poets (Borges, Neruda, Vallejo, Dario); essayists (Rodo, Marti, Sarmiento).

0577. Cervantes' Don Quijote. Cr. 4.

"Don Quijote" as one of the major artistic expressions of the culture of the Western world.

SLAVIC AND EASTERN LANGUAGES AND LITERATURES

Office: 443 Speech and Foreign Languages Building

Chairman: Doris V. Johnson

Professors

Vera S. Dunham, Ph.D., Harry H. Josselson, Ph.D. (Emeritus), Edmund Ordon, Ph.D.

Associate Professor

Tatjana Cizevska, Ph.D.

Assistant Professors

Frank J. Corliss, Jr., Ph.D., Doris V. Johnson, Ph.D.

Adjunct Assistant Professor

Robert P. Rubyan, M.A.

Instructor

Andrew Przekop, M.A.

DEGREE PROGRAMS

Bachelor of Arts — with a major in Polish

Bachelor of Arts — with a major in Russian

Bachelor of Arts — with a major in Slavic

Master of Arts — with a major in East European studies

Master of Arts — with a major in Russian

The courses offered in the Department of Slavic Languages and Literatures are designed (1) for practical training in one or more Slavic languages and (2) as a means toward understanding and evaluating East European culture in general and various Slavic literatures in particular.

BACHELOR OF ARTS

In Polish — Students majoring in Polish are required to complete satisfactorily forty-eight credits in Polish, including Polish 0346 or equivalent and Polish 0445 or equivalent and three other courses in Polish literature, and Slavic 0565 or Polish 0465.

In Russian — Students majoring in Russian are required to complete satisfactorily forty-four credits in Russian *beyond* Russian 0201. These credits will include:

Russian 0245, 0302, 0445 and one of the following: Russian 0240, 0303, 0341;

Russian 0409 and 0410;

c) Russian 0380, 0460, 0560 and either 0530 or 0550;

d) Russian 0551 or Slavic 0565

In Slavic — Students majoring in Slavic are required to complete satisfactorily thirty-six credits in Russian, including Russian 0245, 0302, 0303, and either 0410 or 0445 and one course in Russian literature, and twenty-four credits in Polish, or Ukrainian or the equivalent in another Slavic language, and Slavic 0565.

All majors are strongly urged to elect courses in cognate fields, such as geography, history or political science (for example, Geography 0525, History 0566, Political Science 0506).

MASTER OF ARTS IN EAST EUROPEAN STUDIES

Graduate students pursuing a major in East European studies leading to the Master of Arts degree (see page 239) may earn graduate credit in Polish, Russian, or Slavic.

MASTER OF ARTS IN RUSSIAN

Plan B — Forty-four credits in course work plus an essay.

Plan C — Forty-eight credits in course work.

The applicant must have an adequate undergraduate major, or the equivalent, in Russian. He should also have a reasonable proficiency in speaking and writing Russian and some knowledge of a second foreign language, either ancient or modern.

Degree Requirements — All courses must be approved by the student's major adviser.

1. Linguistics: Russian 0709, 0710, Slavic 0655, and Russian 0765.
2. Language skills and cultural core: Russian 0551 and 0630 or Slavic 0565.
3. Literature: five courses from Russian 0530, 0550, 0660, 0720*, 0770*. One course from among Slavic 0665 and 0692 may be taken in lieu of a course in Russian literature.
4. One seminar, i.e., either Russian 0870 or 0871.
5. Final written and oral examination.

*May be repeated for credit.

COURSES OF INSTRUCTION¹

COURSES IN ENGLISH TRANSLATION

The following courses are open to all students and may be taken for humanities group requirement.

Armenian (ARM)

- 0465. Survey of Armenian Culture and Literature in Translation: Ancient and Medieval Periods. Cr. 4 (Max. 12).**
Cultural heritage of Armenian people; their contribution in arts, literature, music, folklore.
- 0470. Armenian Culture and Literature in Translation: The Great Awakening. Cr. 4.**
Seventeenth to nineteenth centuries following the invention of the printing press and the spread of books and learning.
- 0475. Armenian Culture and Literature in Translation: The Modern Period. Cr. 4.**
Great expectations shattered by genocide and the First World War; dawn of hope; signs of a cultural explosion in the homeland and in the diaspora.
- 0570. Genre in Armenian Literature. Cr. 4 (Max. 12).**
Prereq: ARM 0203 or equiv. Development of a literary form: poetry, short story, drama, novel; major exponents of the form. Topics to be announced in Schedule of Classes.

Polish (POL)

- 0465. Survey of Polish Culture in Translation. Cr. 4.**
No credit toward Slavic major. Main features of customs and institutions, effect on cultural development, major achievements in arts and sciences, contributions to other cultures.
- 0560. History of the Polish Language. Cr. 4.**
Prereq: POL 0201, one course in linguistics or consent of instructor. Historical developments and changes in the Polish language from pre-historical times to the present.
- 0575. Masterpieces of Polish Literature in Translation. Cr. 4.**
Reading and discussions of internationally known works of Polish literature from the Renaissance to the twentieth century.

Russian (RUS)

- 0465. Golden Age of Russian Literature in Translation. Cr. 4.**
Literature of nineteenth century; special attention to major writers.
- 0535. Survey of Russian Literature: 1880-1917. Cr. 4.**
Open only to non-majors. Main works of the Silver Age of Russian literature from Chekhov to the October Revolution.
- 0555. Survey of Russian Culture. Cr. 4.**
Basic features of Russia's cultural heritage in oral and written literature and the arts.

- 0565. Soviet Literature in Translation. Cr. 4.**
Russian literature in Soviet period.

- 0675. Russian Drama in Translation. Cr. 4.**
Masterpieces of the Russian theater from Pushkin to the experimental 1920's; examination of Ostrovsky, Tolstoy, and Chekhov together with those of the symbolists and modernists.

Slavic (SLA)

- 0575. Masterpieces of Slavic Literature in Translation. Cr. 4.**
Major works in Slavic literature, excluding Russia, from their beginnings through the nineteenth century.
- 0670. Slavic Romanticism in Translation and Its Connection with the West. Cr. 4.**
Major Slavic romantic works and their place in European romanticism.
- 0695. The Theatre in East Europe in Translation. Cr. 4.**
Development of the theater in East European countries, excluding Russia, from their beginnings to the twentieth century.

Ukrainian (UKR)

- 0455. Ukrainian Literature of the Nineteenth Century in Translation. Cr. 4.**
Classicism, Romanticism, Realism and Impressionism and their foremost representatives; social and political background.
- 0465. Survey of Ukrainian Culture and Literature in Translation. Cr. 4.**
No credit toward Slavic major. Distinctive features of language, oral and written literatures; development of linguistic, literary cultural separateness.

Courses in Foreign Language Instruction

Armenian (ARM)

- 0101. Elementary Armenian. Cr. 4.**
Introduction to sounds, spelling, vocabulary forms, syntax as basis for reading and conversation.
- 0102. Elementary Armenian. Cr. 4.**
Prereq: ARM 0101 or equiv. Continuation of Armenian 0101.
- 0103. Elementary Armenian. Cr. 4.**
Prereq: ARM 0102 or equiv. Continuation of Armenian 0102.
- 0201. Intermediate Armenian. Cr. 4.**
Prereq: ARM 0103 or equiv. Study in depth of structure, particularly syntax, based on reading. Oral and written practice.
- 0202. Intermediate Armenian. Cr. 4.**
Prereq: ARM 0201 or equiv. Continuation of Armenian 0201.
- 0203. Intermediate Armenian. Cr. 4.**
Prereq: ARM 0202 or equiv. Continuation of Armenian 0202.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0570. Genre in Armenian Literature. Cr. 4 (Max. 12).
Prereq: ARM 0203 or equiv. Development of a literary form: poetry, short story, drama, novel; emphasis on major exponents of the form. Topics to be announced in Schedule of Classes.

0590. Directed Study. Cr. 2-4 (Max. 12).
Undergraduate credit only. Prereq: ARM 0203 or equiv., written consent of chairman. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature.

Polish (POL)

0101. Elementary Polish. Cr. 4.
Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation.

0102. Elementary Polish. Cr. 4.
Prereq: POL 0101 or equiv. Continuation of Polish 0101.

0103. Elementary Polish. Cr. 4.
Prereq: POL 0102 or equiv. Continuation of Polish 0102.

0201. Intermediate Polish. Cr. 4.
Prereq: POL 0103 or equiv. Study in depth of structure, particularly syntax, based on reading. Oral and written practice.

0302. Introduction to Polish Literature: Twentieth Century. Cr. 4.
Prereq: POL 0201 or equiv. Readings of short stories and essays of representative authors.

0303. Introduction to Polish Literature: Nineteenth Century. Cr. 4.
Prereq: POL 0201 or equiv. Continuation of Polish 0302.

0346. Oral and Written Composition. Cr. 4.
Prereq: POL 0203 or equiv. Structural features not mastered in beginning courses. Extends mastery of written and spoken Polish.

0445. Language Skills: Advanced Speaking and Writing. Cr. 4.
Prereq: POL 0346 or equiv. Intensive practical training in use of Polish idiom to achieve fluency of expression.

0460. Major Polish Writers and Their Times. Cr. 4 (Max. 8).
Prereq: POL 0203 or equiv. Mickiewicz or Sienkiewicz: major works; contemporaries; impact on development of Polish literature. Topics to be announced in Schedule of Classes.

0560. History of the Polish Language. Cr. 4.
Prereq: POL 0201, one course in linguistics or consent of instructor. Historical developments and changes in the Polish language from pre-historical times to the present.

0565. Polish Civilization and Culture: Contemporary Poland. Cr. 4.
Relationship to past Polish history.

0570. Genre in Polish Literature. Cr. 4 (Max. 12).
Prereq: POL 0203 or equiv. Development of a literary form: short story, poetry, or literary criticism; emphasis on major exponents of the form. Topics to be announced in Schedule of Classes.

0590. Directed Study. Cr. 2-4 (Max. 12).
Undergrad. prereq: POL 0203 or equiv., written consent of chairman. Graduate major credit only in East European Studies.

Russian (RUS)

0101. Elementary Russian. Cr. 4.
Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation.

0102. Elementary Russian. Cr. 4.
Prereq: RUS 0101 or equiv. Continuation of Russian 0101.

0103. Elementary Russian. Cr. 4.
Prereq: RUS 0102 or equiv. Continuation of Russian 0102.

0201. Intermediate Russian. Cr. 4.
Prereq: RUS 0103 or equiv. Structure, particularly syntax, based on reading. Oral and written practice.

0240. Russian Readings in Arts and Sciences. Cr. 4.
Prereq: RUS 0201 or equiv. Introduction.

0245. Language Skills: Speaking and Writing. Cr. 4.
Prereq: RUS 0201 or equiv. Structural features not mastered in beginning courses. Extends mastery of written and spoken Russian.

0302. Intermediate Russian. Cr. 4.
Prereq: RUS 0201 or equiv. Broader knowledge of Russian grammar and lexicon based on reading of Russian literature.

0303. Intermediate Russian. Cr. 4.
Prereq: RUS 0302 or equiv. Continuation of Russian 0302.

0341. Readings in Russian Prose. Cr. 4.
Prereq: RUS 0201 or equiv. Readings in nineteenth and twentieth century prose.

0380. Introduction to Russian Literature. Cr. 4.
Prereq: 20 credits in language courses or equiv. Introduction to the major genres. Various critical approaches leading to the development of techniques of analysis.

0409. Language Skills: Applied Grammar and Syntax I. Cr. 4.
Prereq: RUS 0201 or equiv. or consent of instructor. Russian as a language system: phonology, morphology, word formation.

0410. Language Skills: Applied Grammar and Syntax II. Cr. 4.
Prereq: RUS 0409 or consent of instructor. Introduction to Russian as a language system: phrase and sentence types.

0445. Language Skills: Advanced Speaking and Writing. Cr. 4.
Prereq: RUS 0245 or consent of instructor. Intensive practical training in use of Russian idiom to achieve fluency of expression.

0460. Survey of Nineteenth Century Russian Literature. Cr. 4.
Prereq: RUS 0380 or consent of instructor. From precursors of Pushkin to Chekhov's death.

0530. Survey of the Era of Transition in Russian Literature: 1880-1917. Cr. 4.
Prereq: RUS 0460 or equiv. The Silver Age of Russian literature from Chekhov to the October Revolution.

0550. Survey of Russian Literature Through the Eighteenth Century. Cr. 4.

Prereq: RUS 0380 or consent of instructor. Open to majors and non-majors. Major works and authors from the "Slovo" to 1800.

0551. Study of Russian Culture. Cr. 4.

Open to majors and non-majors. Basic features of Russian's cultural heritage. Specific characteristics of the developments and interconnections of institutional forms of oral and written literature and arts.

0560. Survey of Twentieth Century Russian Literature. Cr. 4.

Prereq: RUS 0380 or consent of instructor. Russian prerevolutionary and Soviet literature, 1890 to present.

0590. Directed Study. Cr. 2-4 (Max. 12).

Knowledge of Russian required. Undergrad. prereq: written consent of chairman; grad. prereq: written consent of chairman and graduate officer. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature.

0630. Advanced Diction and Oral Interpretation. Cr. 4.

Prereq: RUS 0445 or equiv. Practice relating to structural description of contemporary standard Russian.

0660. Soviet Literature. Cr. 4.

Prereq: RUS 0460 or equiv. Russian literature in the Soviet period: conformism and deviation.

0661. Russian Poetry. Cr. 4.

Prereq: RUS 0380 or consent of instructor. Introduction to Russian poetry of the nineteenth and twentieth centuries, major schools and representative poets, and Russian poetics.

0665. Russian Literature and Social Forces. Cr. 4.

Prereq: RUS 0460 or equiv. Social background of the development of Russian literature. The works and impact of Radischev, Belinsky, Chaadayev, and others, and the subsequent split of literary thought into liberal and conservative.

0709. Structure of Modern Russian I. Cr. 4-8.

Prereq: RUS 0410 or consent of instructor. Selected topics in phonology and morphology. Topics to be announced in Schedule of Classes.

0710. Structure of Modern Russian II. Cr. 4-8.

Prereq: RUS 0709 or equiv. or consent of instructor. Selected topics in word formation and derivation; syntax.

0720. Genre in Russian Literature. Cr. 4 (Max. 12).

Prereq: RUS 0460 or consent of instructor. Development of a literary form; poetry, or short story and novella, or drama; emphasis on major exponents of the form. Topics to be announced in Schedule of Classes.

0765. Old Russian. Cr. 4.

Prereq: SLA 0655. Development of modern Russian language, beginning with Church Slavonic, up to the fifteenth century.

0770. Major Russian Writers and Their Times. Cr. 4 (Max. 12).

Prereq: RUS 0460 or equiv., or consent of instructor. Pushkin, or Dostoyevsky and Tolstoy, or Blok, or Pasternak: major works; contemporaries; impact on development of Russian literature. Topics to be announced in Schedule of Classes.

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

Prereq: consent of adviser.

0870. Seminar in Russian Language. Cr. 4.

Prereq: consent of instructor. Open only to graduate majors with sufficient background preparation for the topic of the seminar. Specific topics in Russian linguistics from area of phonology, morphology, or syntax. Topics to be announced in Schedule of Classes.

0871. Seminar in Russian Literature. Cr. 4.

Prereq: consent of instructor. Open only to graduate majors with sufficient background preparation for the topic of the seminar. Specific topics, such as literary movements, authors or group of authors, to be announced in Schedule of Classes.

Slavic (SLA)

0565. Survey of Slavic Culture. Cr. 4.

Prereq: course in East European area, or consent of adviser or instructor. Extra work required of graduate students. Slavic peoples and their heritage in arts, literature, music, folklore. The common Slavic element, its contribution to world culture.

0655. Slavic Languages: History and Development. Cr. 4.

Prereq: at least one course in linguistics or consent of instructor.

0665. Slavic Romanticism and Its Connection with the West. Cr. 4.

Origins and expansion of Romantic movement in Slavic literatures; Western impacts; distinctive features and adaptations.

0692. Selected Topics in Slavic Studies. Cr. 4 (Max. 12).

Prereq: consent of chairman. Topics to be announced in Schedule of Classes.

0711. Advanced Language Training. Cr. 2-4 (Max. 12).

Prereq: demonstrated reading competence in one language of East European area. Open only to majors in East European studies. Training for reading in one or more languages of East European area, primarily as a research tool in fields of specialized research interest.

0797. Seminar in East European Problems: Social Sciences. Cr. 4.

Prereq: East European studies major, or consent of adviser or instructor.

0798. Seminar in East European Problems: Languages and Literatures. Cr. 4.

Open only to majors in East European studies.

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

Prereq: consent of adviser. Open only to majors in East European studies.

Ukrainian (UKR)

0101. Elementary Ukrainian. Cr. 4.

Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation.

0102. Elementary Ukrainian. Cr. 4.

Prereq: UKR 0101 or equiv. Continuation of Ukrainian 0101.

0103. Elementary Ukrainian. Cr. 4.

Prereq: UKR 0102 or equiv. Continuation of Ukrainian 0102.

0201. Intermediate Ukrainian. Cr. 4.

Prereq: UKR 0103 or equiv. Study in depth of structure, particularly syntax, based on reading. Oral and written practice.

0202. Intermediate Ukrainian. Cr. 4.

Prereq: UKR 0201 or equiv. Continuation of Ukrainian 0201.

0203. Intermediate Ukrainian. Cr. 4.

Prereq: UKR 0202 or equiv. Continuation of Ukrainian 0202.

0450. Ukrainian Literature of the Nineteenth Century. Cr. 4.

Prereq: UKR 0203 or equiv. Classicism, Romanticism, Realism and Impressionism; their foremost representatives; social and political background.

0460. Survey of Contemporary Ukrainian Literature. Cr. 4.

Prereq: UKR 0203 or equiv. Symbolism, futurism, neo-classicism; literature during and after the revolution; current trends.

0590. Directed Study. Cr. 2-4 (Max. 12).

No graduate credit. Prereq: UKR 0203 or equiv.; written consent of chairman. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature.

SOCIAL SCIENCE

Office: 232 Library Court

Director: James B. Christensen

Instructors

Elsie F. Brous, B.A., Mark M. Greer, M.A., Joanne G. Hendricks, M.A., John I. Katharopoulos, M.A., Walter J. Packard, B.A., Paul M. Recchia, M.A., Martin W. Slobin, M.A., Jon C. Swanson, M.A., Fred V. Wenz, M.A.

The Social Science courses 0191 and 0192 offer an integrated presentation of basic materials in the fields of anthropology, sociology, political science, economics, and social psychology. Problems are selected for discussion that will be conducive to scientific thinking about social issues.

The courses are designed primarily for students who intend to enter professional schools in their junior year, but they may be elected in partial fulfillment of the Social Science Group Requirement by other students. Social Science 0191 together with 0192 satisfies the University requirement in American government.

COURSES OF INSTRUCTION¹ (S S)

0191. Contemporary Society. Cr. 5.

Introduction to the methods and viewpoints of social science, to include a consideration of culture, society, population, social stratification, ethnic relations, personality formation, marriage, education and religion. These areas will be approached from an anthropological, sociological and social-psychological orientation.

0192. Contemporary Society. Cr. 5.

Introduction to the historical development of prominent economic and political philosophies supplemented by a description of how these systems operate in the contemporary world.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

SOCIOLOGY

Office: 100 Library Court

Chairman: J. Ross Eshleman

Academic Services Officer: Lois J. Martindale

Professors

John B. Biesanz, Ph.D. (Emeritus), H. Warren Dunham, Ph.D., J. Ross Eshleman, Ph.D., Frank E. Hartung, Ph.D., Edward C. Jandy, Ph.D. (Emeritus), Donald C. Marsh, M.A. (Emeritus), Mel J. Ravitz, Ph.D., Constantina Safilios-Rothschild, Ph.D., Eleanor P. Wolf, Ph.D.

Associate Professors

Joseph L. Albini, Ph.D., Thomas J. Duggan, Ph.D., Stanley S. Guterman, Ph.D., Eva Kahana, Ph.D., Ruth A. Rosen, Ph.D., Mary C. Sengstock, Ph.D., Charles L. Swan, Ph.D., Leon H. Warshay, Ph.D.

Assistant Professors

Carl F. Butts, Ph.D., Edmund G. Doherty, Ph.D., Lynda A. Ewen, Ph.D., Daniel R. Goldman, Ph.D., Joseph Harry, Ph.D., Stanley Kupinsky, Ph.D., Stephen W. Mamchur, Ph.D., Barbara B. Polk, Ph.D., Robert B. Stein, Ph.D.

DEGREE PROGRAMS

Bachelor of Arts — with a major in sociology

Bachelor of Arts — with a major in anthropology and sociology

Master of Arts — with a major in sociology

Doctor of Philosophy — with a major in sociology

The courses in sociology are designed for various groups of students: (1) those desiring scientific knowledge of social relationships as a part of their general equipment for living; (2) those planning to enter a public service profession such as nursing, medicine, dentistry or law; (3) those expecting to engage in a form of public relations work that will require a broad grasp of the nature of society, of public opinion, and of social change; (4) those anticipating a career in social and statistical research and planning; (5) those looking forward to the teaching of social studies and sociology; (6) those preparing for a career in international studies or for service in foreign affairs; (7) those majoring in sociology as a preparation for graduate professional training in social work; (8) those planning to pursue graduate studies in sociology.

Students who plan to enter public relations, mass communications, social research, social planning, statistical analysis, or the teaching of social studies should consult with staff members for guidance. Students interested in social work should see the description of the undergraduate social welfare curriculum below and consult the designated advisers to undergraduates in the School of Social Work.

Merrill-Palmer — Cooperative arrangements with the Merrill-Palmer Institute permit qualified students to obtain a major concentration in family studies. This program is limited to graduate students. Details are available from the department chairman.

BACHELOR OF ARTS

It is expected that Group Requirements will be fulfilled during the freshman and sophomore years. Language Group Requirements should normally be fulfilled before election of the major.

Honors — A number of sections have been designated as Honors sections, providing smaller classes, somewhat more advanced reading, and opportunities for independent work by students. Admission requires a 3.0 over-all average and consent of the department. Students earning an over-all grade point average of 3.0 and a grade point average of 3.5 in the department may be recommended for Alpha Kappa Delta, national honorary society in sociology. The Norman Daymond Humphrey Memorial Award is granted annually to those students admitted to Sigma Xi and Phi Beta Kappa.

With a Major in Sociology

Students are urged to include as many of the following courses as possible during the freshman and sophomore years: Anthropology 0210; astronomy or geology; biology; Economics 0101; Geography 0110; History 0110; Philosophy 0201; Political Science 0101; Psychology 0198; Sociology 0201 and 0202; Statistics 0102.

Major Requirements — Students majoring in sociology are required to elect a minimum of forty-four credits in the field, including Sociology 0201 or Social Science 0191-0192*, Sociology 0202, 0400, 0460, 0530** (or 0630 or 0631). Students may not elect more than sixty-eight credits in course work within the department.

Recommended Cognate Courses — The following subjects are suggested as cognate electives. It is recommended that not less than twelve credits be selected from the list: Anthropology 0210, 0519, 0520, 0535, 0536, 0537, 0606, 0617, 0631, 0633, 0638, 0639; Economics 0102, 0584; Geography 0220, 0613, 0614, 0624; History 0120, 0130, 0201, 0202, 0203, 0513; Political Science 0201, 0208, 0520, 0533, 0582; Psychology 0301, 0330, 0430, 0550, 0565, 0635. Undergraduates who plan graduate study in sociology are encouraged to elect the General Mathematical Analysis sequence (Mathematics 0500, 0501, 0502, and 0503).

With a Major in Anthropology and Sociology

Major Requirements — Students majoring in anthropology and sociology are required to take Anthropology 0210, 0211,

* Sociology majors or majors in combined anthropology-sociology may not count both Sociology 0201 and Social Science 0191-0192 as part of their forty-four credit requirement. Those who elect Social Science 0191-0192 will receive four credits toward their major unless, at the discretion of the department, they are required to take Sociology 0201; in such case, the 0191-0192 sequence shall count only toward the Social Science Group Requirement.

** Students who have taken Sociology 0642 or 0643 (formerly offered) fulfill the requirement for Sociology 0530.

0520, 0527, 0531 and 0638 or 0639, Sociology 0201 or Social Science 0191-0192, Sociology 0202, 0400, 0460 and 0530 or 0630 or 0631. A total of at least twenty-eight credits in sociology and twenty-eight credits in anthropology must be completed, but not more than sixty-eight credits in the combined fields may be elected.

Model Plan for Majors is as follows:

Junior Year

Sociology 0460, 0502, 0508, 0530 (or 0630 or 0631); Philosophy 0220, 0230; Statistics 0102; elective courses

Senior Year

Sociology 0400, 0506, 0514, elective or Honors courses

UNDERGRADUATE SOCIAL WELFARE

Advisers: Mary Shapiro and Phyllis Bagley

The Department of Sociology offers an undergraduate curriculum in social welfare which is planned for:

1. the student who desires a liberal education with emphasis on society and social welfare;
2. the student who plans to obtain employment at the bachelor's degree level in the field of social work directly upon graduation from the University;
3. the student who wishes to prepare for entrance to a graduate school of social work.

This curriculum is within the sociology major. A minimum of forty-four credits in sociology is required for this major, of which no more than eighteen credits may be elected from the social welfare offerings. In order to be considered in the undergraduate social welfare curriculum, the student must indicate this interest when declaring his major.

Required Courses:

SOC 0201—Introduction to Sociology
or
S S 0191-0192—Contemporary Society (a ten credit course of which four credits count toward the major)
SOC 0202—Social Problems
SOC 0400—Methods of Empirical Social Research
SOC 0460—Social Psychology
SOC 0530—Basic Sociological Theory
or
SOC 0630—Sociological Theory before 1920
or
SOC 0631—Sociological Theory since 1920

Elective courses to fulfill the requirement of a minimum of forty-four credits in the major may be selected from any of the other sociology or social welfare offerings including the following:

S W 0422*—Introduction to Social Work II
S W 0423*—Introduction to Social Work III
S W 0601 —Child Welfare
S W 0602 —Introduction to Law in Society I
S W 0603 —Introduction to Law in Society II

* Recommended for those who would like an agency field experience.

The student is encouraged to take as much further work as possible in the following areas: economics, history, political science, psychology, philosophy and the humanities.

Professional education for social work is offered by the School of Social Work and is a graduate program leading to the Master of Social Work degree. Application for admission to this program is made directly to the School of Social Work. Entrance requirements include a baccalaureate degree, a minimum of forty-five credits in the social and biological sciences and the humanities, and an honor point average of 2.6 for all undergraduate work. If the honor point average is below 2.6, educational testing is available to determine ability to handle graduate level work. Additional information regarding the Master of Social Work program is included in the School of Social Work section of this bulletin.

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

Admission — Effective with the 1972-73 academic year, applicants will be admitted three times a year — in fall, winter, and spring quarters. Deadline for applications are May 15, November 10, and February 15, respectively. The materials required for admission are: (1) Transcripts of all previous collegiate work (2) *The Application for Graduate Admission*, with all the required information supplied. Materials (1) and (2) must be mailed to the Office for Graduate Admissions. (3) Letters of recommendation from three endorsers, at least two of whom must be in academic occupations. The letters of recommendation should be mailed to: Chairman, 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 Chairman, Graduate Committee, Department of Sociology.

A grade point average of at least 3.0 in upper division courses, and in courses in sociology, is required for admission. An undergraduate major in sociology is not an absolute requirement for admission, but an applicant should have a substantial background in sociology.

The following courses, or their equivalent, must have been taken before the student can be considered for admission: Sociology 0201, 0202, 0400, 0460, and 0530 (or 0630 or 0631).

Candidacy must be established by the time twenty credits have been earned.

Degree Requirements — All students are required to maintain a B (3.0) average. A grade of C in two courses will be sufficient reason to dismiss a student from the graduate program. There must be thirty-six credits in sociology and related fields, including Sociology 0701, 0787, and two graduate seminars. The thirty-six credits must also include the following courses, if the student has not taken them as an undergraduate: Sociology 0602 and either 0630 or 0631. A final written or oral examination is required in sociology at the option of the department.

Plan C — Forty-eight credits in course work and demonstration of research competence and examination.

Admission — Available only to doctoral applicants and awarded, on application, to qualified students successfully pursuing work for the Ph.D. in sociology. Consult the department chairman for further details.

DOCTOR OF PHILOSOPHY

Admission — Only a limited number of applicants who have demonstrated superior ability and capacities for critical and creative research can be accepted. A master's degree or its equivalent is prerequisite, but will not in itself constitute evidence of aptitude for doctoral work.

Effective with the 1972-73 academic year, admission will be made once a year for the following academic year 1973-74. The deadline for application will be February 15. Applicants will be notified of decisions by March 15. Those accepted must notify the Chairman of the Graduate Committee by April 15 if they are going to enroll in the fall quarter. The following courses, or their equivalent, must have been taken before the student can be considered for admission: Sociology 0201, 0202, 0400, 0460, and 0530 (or 0630 or 0631).

The department requires three recommendations, in addition to the transcripts and other materials required by the Graduate Division. The recommendation forms may be secured from the department office. The completed forms are to be returned to the Chairman of the Graduate Committee, Department of Sociology. These recommendations must be submitted at the same time the admissions form is submitted. For more detailed information see the Master of Arts admissions statement given above.

Degree Requirements — All students are required to maintain a B (3.0) average. A grade of C in two courses will be sufficient reason to dismiss a student from the graduate program. All doctoral students must take or have had, Sociology 0602, 0603, 0604, 0630, 0631, 0701, and 0787. Qualifying examinations for doctoral applicants will cover four of the major areas in sociology. One of these must be in methodology, one must be in sociological theory and one may be in a cognate area outside the field of sociology. Doctoral applicants are required to have three successive quarters in residence as full-time students as defined by the Graduate Division. If residence requirements are not met within two calendar years, the student will be dismissed from the doctoral program. A detailed description of the doctoral program, including specific requirements, is available in *General Information for Doctoral Students in Sociology* which may be obtained from the department on request.

All doctoral students in this department are required to engage in teaching or research as a condition precedent to qualifying for a degree.

Assistantships — A limited number of assistantships are available each year. Awards of such assistantships are normally made on or about March 15 for the forthcoming academic year commencing in September. Application for assistantships must be completed no later than February 15. Consult the department chairman for further details.

COURSES OF INSTRUCTION¹ (SOC)

0201. Introduction to Sociology. Cr. 4.

Prereq: sophomore standing. Structure and functions of society and culture through consideration of important generalizations and concepts.

0202. Social Problems. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Dynamic concepts, including social change, value conflicts and social deviation expanded through analysis of contemporary social problems, such as mental and emotional disorders, family tensions, ethnic and class hostilities, political corruption, economic dislocations.

0300. Social Institutions. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Institutions as patterned organization of purposive behavior. (Formerly Sociology 0500.)

0340. Juvenile Delinquency. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Significant researches into nature, incidence, etiology, treatment, prevention, from Lombroso to present. (Formerly Sociology 0541.)

0390. Directed Study. Cr. 2-4 (Max. 8).

Prereq: consent of full-time faculty member in charge of field in which reading is to be done. Open to juniors and seniors with not less than 16 credits in sociology, with a grade of A or B. For student who shows evidence of ability and interest and who desires to do advanced reading. Part-time and student instructors are not eligible to supervise directed study.

0400. Methods of Empirical Social Research (S W 0745). Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Questionnaire construction; interviewing; sampling; experimental controls; interpretation of data.

0408. Race Relations in the United States. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Social and cultural factors in black-white conflict and adjustment situations, race as caste, the Negro in the United States and Detroit. (Formerly Sociology 0508.)

0413. Sociology of Religion. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Objective analysis of the interrelations between religious phenomena and social institutions, social structure and behavior. (Formerly Sociology 0513.)

0416. Industrial Sociology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or consent of instructor. Sociological aspects of work as related to facets, conditions, consequences of industrialism, examined comparatively. (Formerly Sociology 0616.)

0430. Basic Sociological Theory. Cr. 4.

Prereq: SOC 0202. Analysis of sociological theory from a general conceptual framework; major concepts and theoretical positions in sociology since 1930; pre-1930 theorists; their contributions to recent trends in sociological theory. (Formerly Sociology 0530.)

0460. Social Psychology. Cr. 4.

Prereq: PSY 0198 and SOC 0201 or SS 0191-0192 or ANT 0210. Social-psychological phenomena in human conduct and group life from viewpoint of symbolic interaction.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0490. Honors Program in Sociology. Cr. 2-8 (Max. 20).

Prereq: junior standing; 3.0 h.p.a.; 3.3 h.p.a. in department; 18 credits in sociology; consent of chairman. For superior students who can pursue independent program of research and studies. Student reports on progress of work at bi-weekly pro-seminar meetings.

0502. Urban Sociology (UP 0502). Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Ecological and social organizations of city life. Metropolitan trends in the United States, social problems created by it, various forms of control.

0506. The Family. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Viewpoints of social psychology and cultural anthropology; American family, family and personality, universal patterns, cultural differentiation, changes and programs for reconstruction.

0510. Ethnic Groups in the United States. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Analysis of the role played by immigrants in United States society; problems of immigrants in American life; the processes of adjustment and assimilation. Theories of adjustment: anglo-conformity, the melting pot, social and cultural pluralism.

0511. (P S 0511) Public Opinion and the Political Process (UP 0535). Cr. 4.

Prereq: SOC 0201, P S 0101, 9 credits in social sciences; or consent of adviser. Role of public opinion in the political system. Factors important in the formation of political opinions; assessment of the consequences of the opinions of mass and specialized publics for the political decision-making process.

0514. Social Stratification. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Empirical and theoretical treatment of caste, class, status; their impact on personality, ethnic relations, political power.

0515. The World of the Blue Collar. Cr. 4.

Prereq: SOC 0514, or consent of instructor. The nature and significance of the American blue collar workers' worlds in modern society. Central focus is on his worlds outside of work. Some attention is paid to work as it is related to unemployment and retirement.

0516. Sociology of Leisure. Cr. 4.

Prereq: SOC 0201 or SS 0191 and 0192. Trends in available leisure hours and possible future developments; relationships of leisure activities to major social roles and to social class and occupation.

0540. Criminology (CRJ 0536). Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Theories of causation of crime and treatment of convicted adult offender with reference to history and philosophy of punishment, operation of prison systems, probation and parole.

0542. The American Correctional System. Cr. 4.

Prereq: SOC 0540 or 0541 and consent of instructor. History and philosophy of punishment; the development and present functioning of correctional institutions; trends in treatment.

0543. Theory of Probation and Parole (CRJ 0538). (4,1). Cr. 4.

Prereq: SOC 0540 or 0340. Theories, current practices, field techniques. Projected plans evaluated. Emphasis on case materials.

0544. Organized Crime: Its History and Social Structure (CRJ 0537). Cr. 4.

Prereq: SOC 0540. Social organization of organized crime in the

United States with particular emphasis upon organized crime as a social system and its relationship to society.

0546. Sociology of Law. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Law and the legal structure in its social context. Reciprocal effects of law and the society in which it develops. Comparative analysis with an emphasis on the Anglo-American legal system.

0550. Marriage and Family Problems. Cr. 4.

Prereq: SOC 0506. Factors in problems in parent-child and inter-spousal relationships. Research, education, counseling, legislation, cultural reconstruction relevant to treatment or prevention.

0569. Sociology of Sex Roles. Cr. 4.

Prereq: SOC 0460. Social psychological approaches to the development of sex identity. Sex as caste. Impact of contemporary changes in sex roles on individual behavior and social organization.

0571. Collective Behavior. Cr. 4.

Prereq: SOC 0460. Such topics as crowds, mobs, manias, panics, fashions, fads, social movements, reforms, revolutions. Public opinion and propaganda as related to these phenomena.

0580. Population and Modern Society (S W 0718). Cr. 4.

Prereq: ECO 0101 or SOC 0201 or SS 0191-0192 or consent of instructor. Economic and social significance of world population trends; their changing composition in relation to labor supply, standard of living and markets; national policies affecting population.

0602. Social Statistics (S W 0746). Cr. 4.

Prereq: consent of instructor. Probability and statistical inference; descriptive statistics; contingency tables; partialing; measures of association; simple correlation.

0603. Multivariate Parametric Statistics. Cr. 4.

Prereq: SOC 0602. Multiple and partial correlation, multiple regression, factor analysis, simpler forms of path analysis, limited non-parametric correlational techniques, some attention to computer procedures for performing these techniques.

0604. Multivariate Non-Parametric Analysis. Cr. 4.

Prereq: SOC 0603. Variance; covariance; advanced treatment of effects within multi-dimensional contingency tables and associated tests of significance. Non-parametric alternatives to multivariate parametric procedures.

0606. (ANT 0606) Urban Anthropology (UP 0531). Cr. 4.

Prereq: ANT 0210, 0520, or consent of instructor. Socio-cultural effects of urbanization in the developing areas of the world, particularly: Africa, Latin America, Southeast Asia and India. The process of urbanization; the anthropological approach in the area of urban studies.

0611. Sociology of Knowledge. Cr. 4.

Prereq: consent of adviser; consent of instructor for non-majors. Socio-cultural conditions underlying man's knowledge and its employment. Foundations of myth, ideals, ideologies, other "thoughtways" in the societal process. Significant contributors to field.

0612. Sociology of the Arts. Cr. 4.

Prereq: consent of adviser; consent of instructor for non-majors. Social and cultural factors in background and development of arts. Examples from architecture, visual arts, music, literature. Techniques and theoretical approaches.

0613. Sociology of American Labor. Cr. 4.

Prereq: SOC 0201, or SS 0191-0192 or consent of instructor. Theory of working class organization; history of the development of industrial working organizations; unions and bureaucracy; white collar unionism; perspectives for the future of American unionism. (Formerly Sociology 0512.)

0615. Political Sociology. Cr. 4.

Prereq: SOC 0460 and P S 0101 or consent of instructor, Relationships between political and other social phenomena. Factors influencing political structure including social class, economic problems, religious affiliations, military power. The contributions of sociological theories.

0617. Sociology of Occupations. Cr. 4.

Prereq: SOC 0514 or 0616 or consent of instructor. Critical evaluation of research in occupational sociology. Occupational mobility; professionalization; the effects of graduate training on occupational role performance.

0618. (ANT 0618) Theory and Problems of Emergent Countries. Cr. 4 (Max. 8).

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Underdeveloped and developing countries. Emergent nationalism and socio-cultural factors affecting change. Cultural, demographic, institutional, technological aspects.

0620. Social Change and Social Planning (U P 0642). Cr. 4.

Prereq: consent of adviser. Theories of social change; possibilities and limitations of social planning. History of outstanding planning experiments; case studies from industry, government, community planning. Social techniques aimed at promoting or resisting planned social change. Field trips in Detroit industry, government planning departments.

0622. Economic Sociology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Sociological analysis of economic systems, their development and processes; the corporation as an institution and its growth and influence in the total society; relationship between economic structure, social class, and social change.

0625. Family Sociology: Theories and Research. Cr. 4.

Prereq: two sociology courses, one in social psychology or theory. Major sociological theories relevant to the study of the family combined with a comprehensive survey of family research. Existing theories tested in the light of available research.

0626. (ANT 0626) Latin America. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210 or consent of instructor. Population: race, stratification, institutions; social change; emphasis on contemporary literate societies.

0628. (TBF 6628) Sociology of Urban Schools. Cr. 3-4.

Prereq: consent of adviser. Societal and institutional problems and processes bearing on the education of the culturally-different child.

0630. Sociological Theory before 1920. Cr. 4.

Prereq: 20 credits in sociology. Sociological theorists before 1920; the theorist, his thought and the historical context in which it is developed.

0631. Sociological Theory since 1920. Cr. 4.

Prereq: 20 credits in sociology. Historical and theoretical analysis of sociological thought in the present century; current trends in sociological theory.

0646. Dynamics of Social Action (U P 0645). Cr. 4.

Prereq: SOC 0202 or consent of instructor. Nature, theory, forms of social action in American society; organization and planning for social action; relationship of social action and social change.

0660. Advanced Survey of Social Psychology. Cr. 4.

Prereq: graduate standing; or 16 credits in sociology or psychology, including an introductory social psychology course; or consent of instructor. In-depth survey of substantive topics within social psychology. Contemporary issues, research findings and trends concerning such topics as group dynamics, self and personality, socialization, attitude formation and change, perception.

0666. Sociology and Social Psychology of Abnormal Behavior. Cr. 4.

Prereq: PSY 0330 or 0430 and 0360 or SOC 0460; or consent of instructor. Sociological and social psychological theory and research dealing with the development of functional mental disorders and other forms of abnormal behavior, their careers, treatment, and outcome. Interrelationships in anthropology, sociology, psychology, and psychiatry.

0670. Bureaucratic Structure and Process. Cr. 4.

Prereq: SOC 0202 or consent of instructor. Structures of formal organizations, as determined by overt purposes and covert functions, nature of recruitment, socialization process, and relation to other structures within society.

0671. Introduction to Medical Sociology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192; or consent of instructor. Sociological approach to the incidence of disease; the patterns of its treatment by the medical and para-medical professions. Topics to be announced in Schedule of Classes.

0672. Sociology and Social Psychology of Disability and Rehabilitation. Cr. 4.

Prereq: an undergrad. course in sociology or consent of instructor. Social and socio-psychological factors determining the type of "career" the disabled follow from health through illness, disability, rehabilitation and after rehabilitation. The physician and patient role in the disability and rehabilitation models.

0673. Sociology of Aging. Cr. 4.

Prereq: consent of instructor. Sociological and socio-psychological theories in gerontology; review of social science literature associated with adjustments in aging.

0700. Scientific Study of Society. Cr. 2-4.

Prereq: consent of instructor. Central concepts and principles of sociological theory. Place of sociology in the social sciences.

0701. Advanced Techniques of Social Research. Cr. 4.

Prereq: consent of instructor. Experimental design, sampling methods, questionnaire construction. Major emphasis on developing a research proposal and methodology.

0702. Problems of Urban Society (U P 0702). Cr. 2-4.

Prereq: consent of instructor. Application of social science research; theories underlying different approaches to applied sociology; value assumptions of planning commissions and administrative agencies.

0703. Urban Stratification and Power Structure (U P 0725). Cr. 4.

Prereq: consent of instructor. Social class and power structure in metropolitan community; approaches to the study of community power and decision-making with emphasis on the processes of urban planning.

0704. (P S 0734) Administrative Aspects of Urban Planning (U P 0735). Cr. 4.

Prereq: consent of adviser. See Political Science 0704.

0705. Comparative Sociology of Fertility and Family Planning. Cr. 4.

Prereq: one course on the family or on demography or equiv. Cross-cultural examination of the social and socio-psychological factors affecting fertility as well as the outcome of family planning programs in developing countries. Research studies on fertility and research evaluation studies of family planning.

0720. The Urban Community and Families. Cr. 3.

Prereq: consent of instructor. Community life in urban centers in relation to the life of families. Trends in American cities, community change and ways of bringing it about.

0721. Survey and Evaluation of Research on the Family. Cr. 3.

Prereq: consent of instructor. Selected research studies of the family; emphasis on research findings; research methods used; and the kind of further research that may be needed.

0770. Seminar in Industrial Relations. Cr. 4.

Research and current developments.

0771. Seminar in the Sociology of Women. Cr. 4.

Prereq: graduate standing in sociology or consent of instructor. Cross-cultural and historical analysis of the role of women in society.

0777. The Intellectual and Society. Cr. 4.

Origins, roles, status, and influences of intellectuals in different types of societies.

0780. Seminar in Theories of Social Movements and Revolutions. Cr. 4 (Max. 12).

Prereq: at least one course in sociology, psychology, or social psychology. Sociological and social-psychological theories of the origins and career patterns of social movements and revolutions. Topics to be announced in Schedule of Classes.

0781. Seminar in Field Studies. Cr. 4 (Max. 12).

Designed to stimulate social research in Detroit area. Reports on current research. Topics to be announced in Schedule of Classes.

0782. Seminar in Criminological Theory (CRJ 0778). Cr. 2-4 (Max. 8).

Prereq: introductory course in the particular field, and consent of instructor.

0784. Seminar in Problems of Social Psychology. Cr. 2-4 (Max. 8).

Prereq: elementary course in particular field; consent of instructor.

0786. Seminar in Problems in Sociological Methodology. Cr. 2-4 (Max. 8).

Prereq: one course in methods and in statistics; consent of instructor.

0787. Seminar in Sociological Theory. Cr. 2-4 (Max. 8).

Prereq: SOC 0630 or 0631 or equiv. Major positions, theories, problems.

0788. Seminar in Theories of Social Stratification. Cr. 4.

Prereq: SOC 0514 or consent of instructor. Sociological and social psychological theories of social stratification. Consideration given to theories of stratification in preliterate and preindustrial societies as well as in industrial societies.

0790. Directed Study. Cr. 2-10 (Max. 10).

Prereq: consent of adviser and graduate officer. Not open to doctoral candidates.

0796. Research Problems. Cr. 2-8 (Max. 8).

Prereq: consent of adviser.

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

Prereq: consent of adviser.

0990. Directed Study. Cr. 2-10 (Max. 10).

Prereq: consent of adviser and graduate officer.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

SPEECH COMMUNICATION AND THEATRE

Office: 585 Speech and Foreign Languages Building

Chairman: Edward J. Pappas

Professors

Eugene H. Bahn, Ph.D., George V. Bohman, Ph.D., Bernard L. Brock, Ph.D., Rupert L. Cortright, Ph.D. (Emeritus), John H. Gaeth, Ph.D., Robert T. Hazzard, Ph.D., Leonard Leone, M.A. (Distinguished), Raymond S. Ross, Ph.D., James B. Tintera, Ed.D., George W. Ziegelmüller, Ph.D.

Associate Professors

Thomas O. Andrus, Ph.D., Don F. Blakely, Ph.D., N. Joseph Calarco, Ph.D., Mervyn L. Falk, Ph.D., H. Ray Hoops, Ph.D., J. Daniel Logan, Ph.D., Edward L. McGlone, Ph.D., James A. McMonagle, M.A. (Emeritus), Edward J. Pappas, Ph.D., Lawrence Silverman, M.A., Evelyn M. Sivier, Ph.D., John W. Spalding, Ph.D., Richard D. Spear, M.A., Jack W. Warfield, Ph.D., Gary M. Witt, M.A., Elizabeth G. Youngjohn, M.A. (Emeritus)

Assistant Professors

Lynn S. Bliss, Ph.D., William A. Boyce, Ph.D., Dorothy E. Dreyer, Ph.D., William R. Haushalter, Ph.D., James F. Klumpp, Ph.D., Daniel E. Martin, Ph.D., John L. Mason, Ph.D., John A. McClung, Ph.D., Thomas M. McNulty, Ph.D., James S. Measeff, Ph.D., William T. Page, Ph.D., Russell Edwin Smith, M.A.

Instructors

Maryellen Clemons, M.F.A., Vivian I. Dicks, M.A., Daniel T. Field, M.A., Martin E. Molson, B.A., Thomas M. Pullin, M.A.

Adjunct Professors

Herbert J. Bloom, D.D.S., William McEvitt, M.D.

Adjunct Assistant Professor

Harold S. Stocker, D.D.S., Ph.D.

Cooperating Faculty

Dorothy Billings, Ph.D.

Cooperating Faculty, Department of Audiology, School of Medicine

John H. Gaeth, Ph.D., Chairman and Professor, Doris V. Allen, Ph.D., Associate Professor, Edward J. Hardick, Ph.D., Associate Professor, George E. Lynn, Ph.D., Associate Professor, Robert H. Brey, Ph.D., Assistant Professor

DEGREE PROGRAMS

Bachelor of Arts — with a major in speech

Bachelor of Arts—with a major in radio-television-film

Bachelor of Fine Arts — with specialization in theatre

Master of Arts — with a major in speech

Master of Arts in Teaching College Speech

Master of Fine Arts — with specialization in theatre

Doctor of Philosophy — with a major in speech and specialization in communication, rhetoric, and public address; communication disorders and sciences; radio-television-film; oral interpretation; theatre; audiology; or general speech.

The primary aim of this department is to assist students in developing the ability to communicate effectively in a democratic society. With this end in view, the courses in the department are designed to serve several purposes.

First, for those who desire to improve their general communicative ability in any kind of social situation, Speech 0200—Effective Speech, is offered. If the work can be continued, courses may be elected in voice and articulation; public speaking, discussion and debate; oral interpretation; theatre; and radio, television, and film.

Second, for those who want considerable training in a specific type of professional speech, a sequential group of courses is offered in each of six fields: communication, rhetoric, and public address; communication disorders and sciences; audiology; oral interpretation; theatre; and radio-television-film.

Third, for those who want considerable training for future careers in communications in public and private organizations, a sequential group of courses is offered as background for the fields of community and public relations, training and industrial relations, government, and the mass media professions.

Fourth, for those who wish to prepare for the teaching of speech, programs which qualify students for high school and college teaching positions are offered.

Students who plan to teach speech at any level should consult departmental advisers regarding course elections.

Fifth, for those who desire to correct problems of voice, articulation, rhythm, language or dialect, therapy is available. For further information, contact the Speech and Hearing Center. Assistance is also available in clinical diagnosis and training for the hard of hearing through the Department of Audiology, School of Medicine.

For practical speech training and an opportunity to participate in activities, all students in the University are invited to take part in the following: intramural and intercollegiate debate and discussion, oratory, extemporaneous speaking, oral interpretation, the University Theatre, the group reading programs, Speech Clinic, Speech Laboratory, Radio and Television Workshops, Student Speakers' Bureau, and University Readers' Bureau.

Students intending to transfer should note that some institutions do not grant credit for speech when it is elected in the freshman year.

The Speech Department offers for the Bachelor of Arts degree a major in speech and a major in radio-television-film. Majors should note the wide opportunities for careers which are mentioned above. For professional training in theatre, the department offers curricula leading to the degree of Bachelor of Fine Arts.

BACHELOR OF ARTS

With a Major in Speech

All students desiring to major in speech should consult the undergraduate adviser of the department. Although students do not officially elect a major prior to the junior year, advising in the department is available to freshmen and sophomores.

Major Requirements — It is expected that a major will complete at least thirty-eight credits and not more than sixty credits in the department, but a proper distribution of courses approved by the student's adviser is equally important.

It is desirable that students intending to major begin their work in speech in the freshman year, and that they include Speech 0200, 0204, 0210, 0211, and 0250, plus at least one course in one of the areas of communication disorders and sciences, audiology, theatre, and radio-television-film.

Majors taking the combined curriculum for secondary teaching with a major or minor in speech are required to take Speech 0200, 0204, 0210, 0211, 0250, 0506, and 0530. The same courses are strongly recommended for those preparing for secondary school teaching in the College of Education with major or minor concentrations in speech. Adequate preparation for directing two or three speech activities is expected. Those training to be elementary teachers with majors or minors in speech take Speech 0200, 0204, 0250, and 0507. Consult a departmental adviser for recommended electives beyond the core.

For the undergraduate student with some specialization in the area of theatre majoring in speech, it is recommended that he elect from the following courses: Speech 0260, 0261, 0263, 0264, 0268, 0269, 0461, 0463, 0464, 0465, 0466, 0502, 0559, 0562, 0564, 0565, 0567, 0569, 0660, 0663, 0667. Also see the Bachelor of Fine Arts degree program below.

For the undergraduate student who wishes to pursue specialization in the area of communication disorders and sciences, it should be understood that a master's degree is required for clinical certification by the American Speech and Hearing Association. Study in this major field at the undergraduate level is considered to be pre-professional and should include as many of the following courses as possible: Speech 0508, 0509, 0530, 0531, 0532, 0535, 0536, 0540, 0542, 0544, and 0630.

With a Major in Radio - Television - Film

This curriculum stresses a broad training in liberal arts along with a sequence of courses in one of the following: performing arts, production, writing, theory and criticism. Students planning to major in radio-television-film should consult the curriculum adviser.

Curriculum and Major Requirements are as follows:

1. The regular college Group Requirements and an additional eighteen credits in one or more of the following areas: humanities, English, language, and social science.
2. Core Courses: Speech 0270, 0271, 0272, 0273, 0274, 0371, 0387, and Humanities 0201 or 0501.
3. It is expected that a major will complete at least thirty-eight credits and not more than sixty credits.

A list of courses for supplementary optional sequences in performance, productions, theory and criticism, or writing may be obtained from advisers in the curriculum.

BACHELOR OF FINE ARTS

With Specialization in Theatre

The Bachelor of Fine Arts degree is available for selected students who wish to specialize in theatre. This degree program is designed to provide a broad understanding and an opportunity for full experience in the theatre arts through a curriculum of pre-professional training. The B.F.A. program is divided into two curricula: the *performance* curriculum, emphasizing acting and/or directing; the *production* curriculum, concentrating upon scenic and costume design, and technical theatre.

Admission — Students may petition for entrance into the B.F.A. program in theatre. It is expected that students seeking admission into the performance curriculum will have completed Speech 0260, 0261, 0264, and 0269 before entering their petition. Admission to the performance or the production curriculum will be based upon an interview with the theatre staff.

Degree Requirements — All students entering the Bachelor of Fine Arts program must complete the Liberal Arts Group Requirements. However, the student may waive either the science or the foreign language requirement. It is recommended that the student complete his Group Requirements as soon as possible. A minimum of 180 credits must be completed for the degree, of which a maximum of 96-108 credits may be in Speech, Communication and Theatre. Each student shall complete Speech 0200, 0250, and 0260, 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, are available in the Theatre Office for both the performance and production curricula.



MASTER OF ARTS

With a Major in Speech

Plan A (if recommended by the Chairman of the Committee on Graduate Study) — Thirty-six credits in course work plus a thesis.

Plan B — Forty-five credits in course work plus an essay.

Plan C — Forty-eight credits in course work plus comprehensive written and oral examination in major (available only to master's students in communication disorders and sciences, and audiology).

Admission — The prerequisite to admission is a minimum of twenty-two credits in the desired area of specialization. The applicant for graduate study in speech must be able to write effectively; must demonstrate, by performance tests or course grades, proficiency in speaking and reading; and must consult the Chairman of the Departmental Graduate Committee.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — All applicants for the master's degree are required to take Speech 0700. The graduate program is to be worked out as early as possible with the student's major adviser. A student who has any anticipation of teaching will be expected to elect Speech 0501; 0506 or 0791; 0566; 0607 and one course in the area of radio-television-film.

Essays or theses may be written in any one of the principal fields of speech: communication, rhetoric, and public address; oral interpretation; communication disorders and sciences; audiology; theatre; radio-television-film; speech education; or in any combination of these fields with related fields. A final oral examination is required.

For those specializing in radio-television-film, either Speech 0782 or 0787 must be included in the plan of work, as well as one additional radio-television-film course numbered above 0700. At least two of the following are also required: Speech 0570, 0572, 0580, 0583.

For those desiring to specialize in audiology, it is recommended that early contact be made with the Department of Audiology, School of Medicine, for specific requirements.

Master of Arts in Teaching College Speech

Plan B — Forty-five credits in course work plus an essay.

The student must meet the admission, candidacy, and degree requirements specified above for the M.A. degree. The election of all course work must be approved by the Chairman of the Departmental Committee on Graduate Study.

MASTER OF FINE ARTS

With Specialization in Theatre

The Master of Fine Arts degree in theatre is a two-year program of intense professional training in the student's area of specialization and is offered in acting, directing, or technical theatre.

A minimum of forty-eight credits in graduate courses is required for the M.F.A. (sixty credits for a Technical M.F.A.), including Speech 0700 and three or four credits in Speech 0799 (Master's Essay Direction). The detailed sequence of required and recommended courses may be obtained at the Theatre Office.

The essay in *acting* will consist of:

1. A recital demonstrating the student's ability to perform acceptably in a variety of acting styles. A theatre arts faculty committee will evaluate the recital.
2. a. The student must submit a paper on the materials performed in his recital, including a critical analysis and an explanation of the creative process leading to performance; or
 - b. The student may choose to write a paper on two major roles which he played in the Wayne State University Theatre program. The paper must include a critical analysis and an explanation of the creative process leading to performance.
3. The student is orally examined on all work done on his M.F.A. program.

The essay in *directing* will consist of:

1. After consultation with the theatre arts faculty, the student will be required to direct, independently, a full-length production presenting a problem of suitable complexity. The production will be evaluated by a committee of the theatre arts faculty. The student will furnish evidence of his responsibility for all aspects of production.

2. The student must submit a paper including an historical and critical analysis of the play and its dramatist and a production notebook explaining the problems encountered and a description and evaluation of the solutions attempted.

3. The student will be orally examined on all work done on his program.

Students with an earned bachelor's degree are eligible to enroll in the M.F.A. program if they have successfully completed an audition or personal interview with the theatre arts faculty.

Students with deficiencies of background may be provisionally admitted to the M.F.A. program provided that they enroll in work prescribed to eliminate these deficiencies.

Students must declare their area of specialization upon entry into the M.F.A. program in theatre, although this declaration need not be final until the end of the first year. All students in the M.F.A. program in *acting* are expected to become members of the Hilberry Classic Theatre Company.

DOCTOR OF PHILOSOPHY

With a major in speech and specializations in communication, rhetoric, and public address; communication disorders and sciences; radio-television-film; oral interpretation; theatre; audiology; or general speech.

The program leading to the Doctor of Philosophy degree with a major in speech is adapted to those who plan to (1) teach various phases of speech in universities, colleges, or secondary schools; (2) conduct research or clinics in speech, science, correction, and audiology; or (3) become involved in a wide variety of business and governmental positions, which include working closely with people in personnel, human relations, communications, public relations, theatre, and in radio - television - film.

Admission — Required prerequisites are an undergraduate or graduate major in speech, ability to write effectively, demonstrated proficiency in speaking and reading.

In addition to completing all admission procedures in the Graduate Division, the applicant for graduate study in speech must consult the Chairman of the Departmental Committee on Graduate Study.

If the applicant's capabilities are not already known to the Committee on Graduate Study, decision on his acceptance as a doctoral candidate may be deferred until after a quarter's work has been completed.

For those desiring to specialize in audiology it is recommended that early contact be made with the Department of Audiology, 261 Mack Boulevard, for specific requirements.

For those desiring to specialize in Communication Disorders and Sciences, early contact should be made with the area head, Speech and Hearing Center, 5900 Second, for specific requirements.

Degree Requirements — Speech 0700 or its equivalent and two "tool" courses are required. Specific requirements are available in the office of the chairman of the Departmental Graduate Committee. Any additional requirements will be made by the student's advisory committee and the Departmental Graduate Committee.

Any necessary additional requirements will be made by the student's committee. The qualifying examinations will cover the areas of speech which are elected in the student's plan. A generalized degree program will cover at least four areas. A specialized degree program will cover the field of specialization and the minor or minors approved in the plan. Detailed instructions are available at the department office.

Prior to undertaking his research, the doctoral student must prepare in quadruplicate the graduate division doctoral dissertation outline and record of approval form and obtain the doctoral committee's approval of his topic.

FELLOWSHIPS AND ASSISTANTSHIPS

Each year a number of graduate assistantships and fellowships involving half-time teaching or other work are awarded to qualified doctoral students. Write directly to the chairman of the department or head of the area regarding financial assistance.

COURSES OF INSTRUCTION¹ (SPH)

General and Speech Pedagogy

0200. Effective Speech. Cr. 4.

Beginning course to develop poise and confidence in speaking, emphasizing speaker's personality, voice, diction, bodily action; fundamentals of speech preparation.

0204. Voice and Articulation. Cr. 4.

Analysis of voice and articulation of each student. Exercises for individual improvement. Intensive drill. Phonetics of vowels and consonants. Pronunciation of troublesome words.

0390. Directed Study. Cr. 1-4 (Max. 4).

Prereq: speech major with 20 credits completed; consent of chairman.

0501. Psychology of Speech Communication. Cr. 4.

Prereq: SPH 0210 or equiv. Descriptive, behavioristic, and physiological psychology, analysis of means of stimulating response presented on basis of biological approach to problems of motivation.

0503. History and Philosophy of Speech Education in America. Cr. 3.

0505. Advanced Voice and Articulation. Cr. 3.

Prereq: SPH 0204. Training techniques and analysis for development of superior voice and articulation. Pitch profile, projection control, and dialects.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0506. Teaching Speech in Secondary Schools (TED 4541). Cr. 4.
Prereq: 20 credits in speech or consent of instructor. Philosophy, curriculum, and methods for teaching speech in secondary schools.

0507. Speech Effectiveness in the Elementary School. Cr. 4.
Prereq: SPH 0200. The teacher's personal use of speech; the fuller utilization of speech for more effective teaching.

0508. Phonetics (TED 5432). Cr. 4.
Multisensory study of sounds of the English language, emphasizing acoustic, physiologic, kinesiology approaches.

0509. Anatomy and Physiology of the Speech Mechanism (TED 5433). Cr. 4.
Prereq: consent of instructor. General science of normal speech; anatomy and physiology of respiration, phonation, resonance, articulation.

0606. Issues in Secondary Speech Education (TED 5541). Cr. 3.
Prereq: regular teaching or student teaching and SPH 0506. Key issues in speech education with particular emphasis on secondary school. Inner-city speech, behavioral objectives, bi-dialectalism.

0700. Introduction to Graduate Study in Speech. Cr. 4.
Required during first fifteen credits of all students entering graduate studies in speech.

0790. Directed Study. Cr. 2-4 (Max. 6).
Prereq: consent of chairman and graduate officer.

0791. (TED 7851) Problems and Methods of Teaching Speech in the Community College I. Cr. 3-4.
Prereq: ELD 5851, 8854 or equiv.

0792. (TED 7852) Student Teaching of Speech on the Community College Level. Cr. 3-4.
Prereq. or coreq: SPH 0791 and consent of adviser. Offered for S and U grades only.

0794. (TED 7853) Problems and Methods of Teaching Speech in the Community College II. Cr. 3-4.
Prereq: SPH 0791. Continuation of Speech 0791.

0799. Master's Essay Direction. Cr. 3-4.
Prereq: consent of adviser.

0809. Research in Speech Science (TED 8436). Cr. 4.
Prereq: consent of instructor and adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).
Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.
Prereq: consent of doctoral adviser.

Communication, Rhetoric, and Public Address

0210. Persuasion. Cr. 4.
Prereq: SPH 0200. Audience analysis and motivation; choice, arrangement, adaptation of materials. Talks to win attention, secure action, overcome prejudice and hostility. Theory and practice of social psychology as applied to persuasion.

0211. Argumentation and Debate. Cr. 4.
Prereq: SPH 0200. No credit toward speech major unless Speech 0224 is satisfactorily completed during following quarter. Logical and legal foundations of the argumentation process; practical experience in analysis, reasoning, case-building, evaluation of evidence, refutation and cross-examination.

0224. Practicum in Forensics. Cr. 1-2 (Max. 6).
Special permission needed for two credits. Prereq: SPH 0200 or consent of instructor. Training and participation in debate; discussion, oratory, extempore speaking program.

0312. Parliamentary Law. Cr. 2.
Theory and practice in methods of organization, order of business, conduct of business, motions, formation of constitution and by-laws.

0316. Contemporary Persuasive Campaigns and Movements. Cr. 4 (Max. 8).
Rhetorical analysis of techniques utilized in specific campaigns and movements. Topics to be announced in Schedule of Classes.

0321. Approaches to the Study of Human Communication. Cr. 4.
Integrated study of theories of human communication; understanding differing perspectives; findings and hypotheses of various theorists and researchers.

0510. Advanced Public Speaking. Cr. 3.
Prereq: SPH 0210 or 0211. Performance and criticism of original speeches to develop understanding of the principles of public speaking as they apply to a variety of speech situations.

0512. Problems in Parliamentary Law. Cr. 2.
Prereq: SPH 0312 or consent of instructor. Advanced course on the solution of problems; the logic, strategy, and common errors in parliamentary law; practical experience in use. Meets certification requirements of American Institute of Parliamentarians.

0519. Human Communication in Medical Professions. Cr. 4.
Open only to students majoring in health related fields. Training in inter-personal communication theories and skills relevant to medical professions. Group decision-making, interviewing, listening and institutional communication.

0520. Group Communication and Human Interaction. Cr. 4.
A small-group course on rational processes of decision making, cohesion, interaction, and inter-personal communication. Discussion techniques and procedures through student performance.

0521. Theories of Communication and Persuasion. Cr. 4.
Prereq: SPH 0210. Survey of current psychological and sociological theories of persuasion and overview of persuasion research.

0522. Communication in the Area of Human Sexuality. Cr. 4.
Prereq: consent of instructor. Theories of communication and discussion applied to human sexuality. Current literature reviewed in preparation for assigned speeches, discussions, and role-playing situations.

0607. Directing Forensics. Cr. 4.
Philosophy and methods of directing high school and college forensics programs; techniques of coaching for debate, oratory, extempore speaking and other reading and speaking contests.

0611. Theory of Argument and Controversy. Cr. 4.
Prereq: SPH 0210 or 0211 or graduate standing. Advanced studies in argumentation, including the structure of reasoning, the organi-

zation of arguments, strategies of argument, and the nature of proof.

0613. Rhetorical Theory and Practice in Ancient Greece. Cr. 4.

Prereq: SPH 0210 or 0211 or classical civilization major. Critical analysis of Plato, Aristotle, and Sophists on rhetoric.

0620. Leadership and Group Processes in Speech. Cr. 4.

Prereq: SPH 0520 or graduate standing. Theory and practice of leadership for conference and group discussion. Case method, role-playing, interaction analysis, and conciliation methods.

0621. Organizational Communication. Cr. 4.

Prereq: SPH 0520 or consent of instructor. The role of internal communication in organizations.

0624. Speech Communication Laboratory Practicum. (0,2-8). Cr. 1-2 (Max. 4).

Prereq: consent of speech communication laboratory director. Training and experience in laboratory projects and equipment utilization.

0626. Behavioral Research Methods in Speech Communication. Cr. 4.

Prereq: consent of instructor. Introduction to statistical inference, measurement, and other quantitative research methods for communication research.

0710. Advanced Studies in Persuasion. Cr. 4.

Prereq: SPH 0521 or consent of instructor. Intensive study of selected contemporary theories and research in persuasion.

0713. Rhetorical Theory: Rome Through the Renaissance. Cr. 4.

Prereq: SPH 0613 or consent of instructor. Critical analysis of the development of rhetorical theory from the first century, A.D. to 1700.

0714. Modern British and American Rhetoric. Cr. 3.

Prereq: consent of instructor. Critical analysis of the development of rhetorical theory in England and America, 1700-1850.

0715. History of American Public Address to 1860. Cr. 4.

Prereq: SPH 0210 or consent of instructor.

0716. History of American Public Address from 1860-1945. Cr. 4.

Prereq: SPH 0210 or consent of instructor.

0717. Studies in Contemporary Public Address. Cr. 4.

Prereq: SPH 0210.

0721. Advanced Studies in Communication. Cr. 4.

Prereq: SPH 0521. Modern theory and models of symbolic and communicative behavior.

0725. Rhetorical Criticism. Cr. 3.

Prereq: SPH 0210 or consent of instructor. Review of principles of criticism as applied to public address. Analysis of standards and methods of evaluation and readings in modern criticisms of public address. Research project. (Formerly Speech 0627).

0727. Special Problems in the Methodology of Rhetorical Criticism. Cr. 3.

Studies and utilization of the various methodologies for the criticism of discourse.

0813. Seminar in Contemporary Rhetorical Theory. Cr. 3.

Prereq: consent of instructor. Exploration of a broad spectrum of recent works relevant to the art of discourse.

0820. Seminar in Group Communication. Cr. 4 (Max. 12).

Prereq: SPH 0520 or equiv. Selected topics in small group and interpersonal communication. Topics to be announced in Schedule of Classes. (Formerly Speech 0720)

0826. Research Design in Speech Communication. Cr. 4.

Prereq: SPH 0626. Design and analysis of experiments in speech communication.

0897. Seminar in Communication, Rhetoric and Public Address. Cr. 2-3 (Max. 12).

Prereq: consent of instructor.

Communication Disorders and Sciences

(For Speech 0508, 0509, 0809, see descriptions under GENERAL AND SPEECH PEDAGOGY.)

Student Remedial Speech. No credit. Consult director of the Speech and Hearing Center for information concerning speech correction for University students.

0530. Introduction to Speech Pathology (TED 5430). Cr. 4-5.

Development of speech correction in education; classification, basic principles, methods of diagnosing and treating speech deficits; clinical observations required for majors only.

0531. Clinical Methods in Speech Pathology (TED 5431). Cr. 5.

Prereq: SPH 0530 or consent of instructor. Procedures and materials for clinical treatment of articulatory, language, rhythm, and voice deficits of organic and non-organic causation. Laboratory required.

0532. Normal Language Acquisition and Usage (TED 5436). Cr. 4.

Prereq: consent of instructor. Language development in children and the associated areas of emotional and motor development; language stimulation techniques and programs.

0535. Theories of Normal Language Development (TED 5435). Cr. 4.

Prereq: consent of instructor. Theories of development in children including those of Mysak, Lenneberg, Piaget, and Chomsky.

0536. Clinical Practice in Speech Pathology (TED 5434). Cr. 2 (Max. 8).

Prereq: SPH 0531 and written consent of instructor. Supervised experience in application of methods of diagnosis and treatment of clinical cases.

0537. Introduction to Black Speech Patterns (TED 5437). Cr. 4.

Prereq: SPH 0535 or consent of instructor; ANT 0520 recommended. For majors in speech pathology and science and majors in other areas of special education who require a comprehensive view of black speech and language patterns within a speech pathology model. To prepare the speech clinician to manage the problems of children with black dialect in speech correction classes; to aid in the formulation of philosophy related to the role of the classroom teacher.

0539. Language Pathology: Etiology and Diagnosis (TED 5439). Cr. 4.

Prereq: consent of instructor. Descriptions, etiology, methods of diagnosis of language disorders in children.

0608. Advanced Phonetics (TED 6433). Cr. 4.

Prereq: SPH 0508. Correlation of physiology to the production of speech and the acoustic characteristics of the sounds of English.

0609. Electroacoustics of Speech (TED 6434). Cr. 4.

Prereq: consent of instructor. Lecture-laboratory consideration of electroacoustics as applied to speech and audition.

0630. Speech Pathology (TED 6430). Cr. 4 (Max. 12).

Prereq: SPH 0530 or consent of instructor. I—voice and articulation; II—aphasia and cerebral palsy; III—stuttering and cleft palate. Topics to be announced in Schedule of Classes.

0632. Organization and Methods in Speech Pathology (TED 6432). Cr. 4.

Prereq: consent of instructor. Class organization, management, material, teaching aids, techniques.

0634. Speech of the Laryngectomee (TED 6439). Cr. 4.

Prereq: consent of instructor. Basic principles and practices for developing and improving the speech of the laryngectomee.

0636. Advanced Clinical Practice in Speech Pathology (TED 6436). (1,2). Cr. 2-4 (Max. 8).

Prereq: SPH 0531, 0630; or consent of instructor. Advanced clinical practice in the diagnosis and treatment of one or more of five speech pathologies. I—stuttering; II—aphasia; III—cleft palate; IV—cerebral palsy; V—voice. Topics to be announced in Schedule of Classes.

0638. (TED 6455) Teaching Communication Skills to the Language Disordered. Cr. 3.

Prereq: SPH 0539 or written consent of instructor. Problems of primary language disorders in children; diagnosis; systematic approach to the development of speech and language, educational methods, and evaluation.

0733. Clinical Practice in Language Pathology (TED 7433). Cr. 2 (Max. 6).

Prereq: SPH 0638 and written consent of instructor. Supervised experience in application of methods of diagnosis and treatment of clinical language cases.

0734. Dynamic Analogies (TED 7434). Cr. 4.

Prereq: written consent of instructor. Analogies between electrical, mechanical rectilinear, mechanical rotational and acoustical systems.

0735. Advanced Anatomy and Physiology of the Speech Mechanism (TED 7435). (2,4). Cr. 4.

Prereq: SPH 0509 and written consent of instructor. Consideration of current literature and dissection.

0736. Internship in Speech Pathology (TED 7430). Cr. 2-4 (Max. 12).

Prereq: consent of instructor. Advanced professional experience in clinical speech pathology.

0738. Diagnosis of Speech and Language Problems (TED 7431). Cr. 4 (Max. 12).

Prereq: consent of instructor. Clinical practice in diagnosis; hand-

ling referrals to medical specialists; planning, training, treatment procedures.

0835. Seminar in Language Pathology (TED 8435). Cr. 4.

Prereq: written consent of instructor. In-depth analysis of existing literature in language pathology.

0838. Seminar in Speech Science (TED 8438). Cr. 4 (Max. 16).

Prereq: written consent of instructor. I vocal mechanisms; II embryology; III neuromuscular bases; IV feedback mechanisms. Four credits in each topic. Topics to be announced in Schedule of Classes.

0839. Seminar in Speech Pathology (TED 8437). Cr. 4 (Max. 16).

Prereq: SPH 0630 or consent of instructor. I—stuttering; II—aphasia; III—cleft palate; IV—neuromuscular disorders; V—voice disorders; VI—articulation; VII—interdisciplinary speech pathology. Topics to be announced in Schedule of Classes.

Audiology

0540. Introduction to Audiology (AUD 0540) (TED 5440). Cr. 4.

Prereq: consent of instructor. Physics of sound, anatomy of the hearing mechanism, audiometry, hearing aids, habilitation and rehabilitation of the hearing handicapped.

0541. Directed Readings in Audiology (AUD 0541). Cr. 2 (Max. 4).

Prereq: SPH 0540. Reading assignments, lectures, discussions, oral and written reports. Two hours required in first quarter for M.A. students.

0542. Speech Reading and Auditory Training (AUD 0542) (TED 5451). Cr. 3.

Prereq: SPH 0540 or consent of instructor. Principles and methods of teaching speech reading and utilizing auditory training for the hard-of-hearing and deaf. Observations and practice required.

0544. Practicum in Audiology (AUD 0544) (TED 5441). Cr. 2-4 (Max. 6).

Prereq: SPH 0540 or 0542 and written consent of instructor. Not open for credit to graduate students in audiology. Supervised training and practice for clinical certification: (I) audiometry; (II) speech reading and auditory training.

0548. Acoustics, Instruments (AUD 0548). (3,3). Cr. 4.

Prereq: graduate standing in audiology or consent of instructor. Design, calibration, and use of electro- and bio-acoustic instruments in clinical audiology. (Formerly Speech 0649)

0549. Acoustics, Sound and Noise (AUD 0549). (3,3). Cr. 4.

Prereq: SPH 0548 or consent of instructor. Generation, measurement, and control of sound and noise as related to problems in clinical and industrial audiology. (Formerly Speech 0648)

0640. Anatomy of the Ear (AUD 0640) (TED 6442). Cr. 4.

Prereq: graduate standing or consent of instructor. Functional anatomy, physiology, neurology of the hearing mechanisms; study of research on basic auditory correlates.

0641. Clinical Audiometry I (AUD 0641). Cr. 3-4.

Prereq: graduate standing in audiology or consent of instructor. Fundamental principles and clinical applications of pure-tone and speech audiometry.

0642. Clinical Audiometry II (AUD 0642). Cr. 3-4.

Prereq: SPH 0641. Application of pure-tone and speech audiometry to complex auditory problems.

0643. Clinical Audiometry III (AUD 0643). (3,0-3). Cr. 3-4.

Prereq: SPH 0641. Physical characteristics and clinical aspects of auditory amplifiers for the hearing handicapped.

0644. Aural Rehabilitation (AUD 0644). (4,2). Cr. 4.

Prereq: 8 credits in audiology or consent of instructor. Principles and procedures in the utilization of residual hearing, lip reading, auditory training, and hearing aids in the rehabilitation of hard-of-hearing and deafened adults.

0645. Clinical Procedures in Audiology (AUD 0645).

Cr. 2 (Max. 10).

Prereq: written consent of department. In-depth study of special current topics in audiology. Topics to be announced in Schedule of Classes.

0646. Experimental Audiology I (AUD 0646). (3,3). Cr. 4.

Prereq: graduate standing in speech or written consent of instructor. Lectures and laboratory projects designed to develop fundamental principles of the design of experiments in audiology.

0647. Experimental Audiology II (AUD 0647). (3,3). Cr. 4.

Prereq: SPH 0646. Lectures and laboratory projects to provide experience in the actual conduct and reporting of fundamental experiments in audiology.

0740. Research Projects in Audiology (AUD 0740).

Cr. 4 (Max. 12).

Prereq: written consent of instructor. Methods and procedures for experimental study of auditory function in the normal and hard-of-hearing; independent research projects.

0741. Psychoacoustics (AUD 0741). Cr. 4.

Prereq: written consent of instructor. Psychophysical methods, physical acoustics, and psychological correlates to acoustic events.

0742. Community and Industrial Problems in Audiology (AUD 0742). Cr. 4.

Prereq: 12 graduate credits in audiology or consent of instructor. Hearing conservation programs in industry and in the community; discovery and prevention of hearing loss; medico-legal problems.

0743. Audiological Management of Children (AUD 0743). (3,2). Cr. 4.

Prereq: SPH 0641 and consent of instructor. Tests, test procedures, educational placement and management of pre-school and school age children with hearing deficiencies.

0745. Statistical and Experimental Procedures in Audiology I (AUD 0745). Cr. 4.

Prereq: consent of instructor. Introduction to descriptive and inferential statistics and experimental designs as applied to auditory, psychophysical, and behavioral data.

0746. Statistical and Experimental Procedures in Audiology II (AUD 0746). Cr. 4.

Prereq: SPH 0745. Application of the various analyses of variance procedures to auditory, psychophysical, and behavioral data.

0747. Statistical and Experimental Procedures in Audiology III (AUD 0747). Cr. 4.

Prereq: SPH 0746. Use of non-parametric statistics and special correlation methods with auditory and psycho-physical data.

0748. Internship in Audiology (AUD 0748). Cr. 2-4 (Max. 8).

Prereq: consent of instructor. Professional experience in clinical audiology, case work-ups, assigned reading.

0841. Audiology I (AUD 0841). Cr. 3.

Prereq: SPH 0641, 0642, and 0643 or consent of instructor. Open only to students with master's degree. Special procedures and applications of pure-tone and speech audiometry with emphasis on theoretical factors and research.

0842. Audiology II (AUD 0842). Cr. 3.

Prereq: SPH 0841. Open only to students with master's degree. Historical development and clinical and research applications of automatic, operant, and bioelectric audiometry.

0843. Audiology III (AUD 0843). Cr. 3.

Prereq: SPH 0842. Open only to students with master's degree. Clinical research related to auditory amplifiers with special emphasis on modern trends in instruments for both hard-of-hearing and deaf.

0844. Research Seminar in Deafness (AUD 0844) (TED 8456). Cr. 3-4 (Max. 8).

Prereq: consent of instructor. Methods and procedures in experimental study of deafness and the deaf; literature; apparatus, supervised research.

0848. Seminar in Audiology (AUD 0848). Cr. 4 (Max. 16).

Prereq: consent of instructor.

0849. Advanced Seminar in Deafness (TED 8457). Cr. 3-4 (Max. 8).

Prereq: consent of instructor.

Oral Interpretation

0250. Beginning Oral Interpretation. Cr. 4.

Prereq: SPH 0200. Interpretative approach to literature. Insight into meaning. Good oral expression. Projects, criticism, practice.

0258. Group Reading. Cr. 4.

Prereq: SPH 0250. Group reading of types of literature including choral speaking.

0550. Interpretation of Types of Poetry. Cr. 4.

Prereq: SPH 0250 or equiv. Study and performance of types of poetry, traditional and contemporary.

0553. Interpretation of Prose Fiction. Cr. 4.

Prereq: SPH 0250 or equiv. Study and performance of the short story and novel.

0554. Interpretation of Dramatic Literature. Cr. 4.

Prereq: SPH 0250 or equiv. Study and performance of dramatic literature.

0555. Oral Reading Workshop. Cr. 1-2 (Max. 6).

Prereq: SPH 0250 or consent of instructor. Workshop in conjunction with Oral Interpretation activities. Selection, adaptation, and presentation of all types of literature and manuscript speeches for festivals, contests, and public programs.

0566. Play Production for School and Community. Cr. 4.

Not for theatre majors. Directing plays for school or community theatres. Organization of dramatic groups, tryouts, casting, problems of directing, motivation of action and speech, inventing stage business, production coordination.

0567. Stage Design (ART 0538). Cr. 4 (Max. 8).

Prereq: SPH 0559 or consent of instructor. The scenic designer's multiple analysis of a play. Practice in evolving a technique of scenic design by study of selected plays with execution of sketches and working drawings.

0568. Advanced Stage Design. Cr. 4 (Max. 8).

Prereq: SPH 0567 or consent of instructor after examination of some of student's scenic designs. Laboratory theory course in stylistic characteristics of modern stage design. Advanced problems in scenic design.

0569. Theatre History I. Cr. 4.

Physical and production development from Greek and Hellenistic periods through medieval drama; cultural environment of theatrical period.

0581. Black Theatre: Play Writing Workshop. Cr. 4.

Prereq: SPH 0260, 0368, 0369 or consent of instructor. Practice in writing an original script on some subject related to the black culture in contemporary society.

0582. Black Theatre: Play Direction. (3,2). Cr. 4.

Prereq: SPH 0260 or 0368, 0263, 0462 and 0464 or consent of instructor. Producing the one-act play by black authors. Students will direct plays on University student stage.

0584. Drama for the Theatre II. Cr. 4.

Continuation of Speech 0367.

0585. (ENG 10516) Writing for Theatre Film and Television. Cr. 4 (Max. 8).

Prereq: ENG 0316 or consent of instructor. Comparative study in structure of stage, radio and television plays, motion picture scenarios. Practice in writing either an original script or an essay on some phase of contemporary dramatic form. Actual production of some scripts in experimental theatre and radio studios of Department of Speech.

0588. Theatre History II. Cr. 4.

Prereq: SPH 0569 or consent of instructor. Continuation of Speech 0569. Italian Renaissance through eighteenth century.

0589. Introduction to Scene Painting. (2,4). Cr. 3.

Prereq: SPH 0263 or consent of instructor. Laboratory and demonstration course as an introduction to painting for the stage, with an emphasis on the materials, texturing techniques, three-dimensional effects and beginning work from painter's elevations.

0660. Studio I. Cr. 4.

Prereq: graduate standing. Open only to members of the Hilberry acting company and M.A. and M.F.A. candidates in direction; or by consent of instructor. Examination and analysis of a specific dramatic genre, style, or historical period as it relates to the arts of the actor and director. Correlative performance projects. Subject matter will be coordinated with the repertory of the Hilberry Theatre.

0661. Creative Drama for Children. Cr. 4.

...making for and by children.

0662. Children's Theatre Play Production. Cr. 4.

Prereq: SPH 0566 or 0661 recommended. Theory and practice of organization, selection, direction, production of plays for children's audiences in schools, churches, communities.

0663. Studio II. Cr. 4.

Prereq: SPH 0660. Open only to members of the Hilberry acting company and M.A. and M.F.A. candidates in direction; or by consent of instructor. Continuation of Speech 0660.

0664. Advanced Scene Painting. (2,4). Cr. 3.

Prereq: SPH 0589 and consent of instructor. Laboratory and demonstration course for the design or technical theatre student. Materials, techniques, styles of scene painting.

0665. Problems of Theatre Organization and Management. Cr. 3.

Prereq: 10-12 credits of theatre courses. Theatre curriculum, management, organization, exploitation, financing, and other phases of university, community, and high school theatre. Laboratory experience in the University theatres.

0666. Costume Design for the Theatre. Cr. 3 (Max. 6).

Prereq: SPH 0462 or consent of instructor. Advanced phases of costume design and construction. Source material for historical and national costumes.

0667. Studio III. Cr. 4.

Prereq: SPH 0663 or consent of instructor. Open only to members of the Hilberry acting company and M.A. and M.F.A. candidates in direction; or by consent of instructor. Continuation of Speech 0663.

0668. Advanced Stage Lighting Design. Cr. 3 (Max. 6).

Prereq: SPH 0464 or consent of instructor. Light design, color, optics, instruments, and control as related to advanced problems in stage lighting. Laboratory projects coordinated with University Theatre productions.

0688. Drama for the Theatre III. Cr. 4.

Continuation of Speech 0551.

0760. Studies in Pre-Modern Theatre. Cr. 3.

Analysis of a theatrical period, author, or major critical problem prior to the twentieth century. Topics to be announced in Schedule of Classes.

0761. Trends in the Modern Theatre. Cr. 3.

Expressionism, Epic Theatre, Theatre of the Absurd, Theatre of Cruelty and other movements since World War I. Relation of dramatic theory to theatrical practice.

0762. Advanced Technical Theatre Problems. Cr. 3.

Prereq: consent of instructor. Advanced study and research in scenic design, theatre architecture, stagecraft, lighting. Projects and reports.

0764. Studies in Dramatic Criticism. Cr. 3.

Analysis of selected classical critical texts in relation to dramatic literature and production; emphasis on ancient Greek and Renaissance and Elizabethan theatre. Topics to be announced in Schedule of Classes. (Formerly Speech 0669).

0765. Studio IV. Cr. 4.

Prereq: SPH 0667 or consent of instructor. Open only to members of the Hilberry acting company and M.A. and M.F.A. candidates in direction; or by consent of the instructor. Continuation of Speech 0667.

0766. Studio V. Cr. 4.

Prereq: SPH 0765 or consent of instructor. Open only to members of the Hilberry acting company and M.A. and M.F.A. candidates in direction; or by consent of instructor. Continuation of Speech 0765.

0767. Advanced Repertory Theatre. Cr. 2-4 (Max. 9).

Prereq: consent of director, University Theatre. Continuation of Speech 0560. Supervised experience in the Classic Theatre repertory program.

0768. Advanced Theatre Laboratory. Cr. 1-4 (Max. 4, M.F.A. students; Max. 12 with consent of instructor).

Prereq: consent of instructor. Supervised laboratory practice in technical theatre and theatre management.

0769. Theatre History III. Cr. 4.

Prereq: SPH 0569 and 0588 or consent of instructor. Continuation of Speech 0588. From the nineteenth century continental theatre through the modern theatre.

0860. Advanced University Theatre Practicum. Cr. 1-3 (Max. 5).

Credit determined by complexity of dramatic role performed. Prereq: consent of theatre staff. Public performance in the dramatic production of the University's Bonstelle, Studio, and Children's Theatres.

0869. Seminar in Theatre. Cr. 2-3 (Max. 12).

Prereq: consent of adviser.

Radio and Television

0270. Introduction to Radio, Television, and Film. (3,2). Cr. 4.

History and regulation of the broadcast and film media. Social and economic implications. Laboratory projects in fundamentals of radio, television, and film.

0271. Radio and Television Announcing. Cr. 4.

Prereq: SPH 0270. Theory and practice in applying principles of performance to broadcast media.

0272. Basic Television Production Techniques. Cr. 4.

Prereq: SPH 0271. Theory and practical application of materials and techniques used in television.

0273. Mass Media Appreciation and Criticism. Cr. 4.

Aesthetic, formal, and stylistic considerations in the mass media; application of critical methods of analysis to the substance of the media.

0274. Radio-Television-Film Writing. Cr. 4.

Prereq: SPH 0270. Application of writing principles to the broadcast media. Various forms of radio and television copy: continuity, commercials, public service announcements, news, and features.

0275. Radio, Television, Film Laboratory. Cr. 1 (Max. 4).

Prereq: written consent of instructor. Practical experience in workshop projects.

0371. Radio Production. Cr. 4.

Prereq: SPH 0271. Theory and practice in production techniques.

0372. Television and Film Performance. Cr. 4.

Prereq: SPH 0271. Theory and application of performance techniques. Projects in performing for television and film.

0375. Advanced Television Production Techniques. Cr. 4.

Prereq: SPH 0272. Theory, production, and utilization of television graphic materials, design and staging concepts, lighting techniques, and television studio operations.

0570. Audience Measurement and Survey Techniques in Mass Media. Cr. 4.

Prereq: SPH 0270 or consent of instructor. Theory and application of research techniques in audience measurement.

0572. Broadcast Management. Cr. 4.

Prereq: SPH 0270. Organizational, departmental functions, external relationships of the commercial broadcast station. Application of broadcasting philosophy and regulations to station operation.

0574. Production Facilities and Studio Operations. Cr. 4.

No credit for radio-television-film majors. Theory and practice of television production.

0576. Television Directing. Cr. 4.

Prereq: SPH 0375 or equiv. Principles of direction through demonstration, discussion, selected reading, laboratory productions.

0578. Advanced Radio, Television, Film Writing. Cr. 4.

Prereq: SPH 0274. Principles and practice in writing the documentary and drama for radio, television, and film.

0580. Mass Communications and Society. Cr. 4.

Analysis of mass media and its impact on society.

0583. International Broadcasting. Cr. 4.

Prereq: SPH 0270. World broadcast systems, organizations, and objectives.

0675. Mass Communications Laboratory. Cr. 1 (Max. 2).

Prereq: written consent of instructor. Supervision of special communication projects.

0677. Special Projects in Radio, Television, Film. Cr. 4 (Max. 8).

Prereq: senior or graduate standing and written consent of instructor. Advanced study and projects.

0780. Radio and Television Program Development. Cr. 4.

Prereq: SPH 0572. Practical and philosophical approaches in program building, social responsibilities and professional skill. Programming functions, types, structure, with practice in analysis.

0781. Seminar in Mass Communications. Cr. 3 (Max. 9).

Prereq: consent of instructor.

0782. Seminar in Mass Media Research. Cr. 3.

0784. Seminar in Instructional Aids and Media. Cr. 3.

0785. Mass Communications Management. Cr. 3.

Prereq: SPH 0572. Various systems and methods of management theory and application.

0786. Content Analysis of Mass Communications. Cr. 3.

Prereq: consent of instructor. Content material in mass media; its socio-psychological impact upon mass audiences.

0787. Theory and Criticism of Mass Media. Cr. 4.

Contemporary criticism of mass media, both educational and commercial, in the framework of communication theory.

0788. Educational Utilization of Mass Communications. Cr. 3.

Analysis of use of communication media, broadcast or closed-circuit, in formal and informal learning situations. Higher education use of media and research investigation and application.

0880. Seminar in Computer Assisted Instruction (ELD 7764). Cr. 3.

Prereq: consent of instructor. Analysis of computer based instruction as a mass communications medium. Writing, testing, and evaluation of control and command languages in lesson and program preparation using W.R.A.P. and other command languages of computer assisted instruction. Modern mass communications evaluation techniques applied to computer assisted instruction.

0883. Seminar in International Communications. Cr. 3.

Prereq: SPH 0583. Continuation of Speech 0583. Internal and external communications involving individual countries.

Film

0286. History of Motion Pictures I. Cr. 4.

Films representative of important periods of technical advancement. The motion picture as a modern visual art.

0387. Basic Cinematography Techniques (ART 0338). Cr. 4.

Prereq: SPH 0270. Composition, pictorial continuity, screen direction, lighting for motion pictures.

0586. History of Motion Pictures II. Cr. 3.

Prereq: SPH 0268 or consent of instructor. Continuation of Speech 0286. Motion pictures of significant experimentation in film art.

0587. Advanced Cinematography Techniques. Cr. 4.

Prereq: SPH 0387. Techniques of camera work and editing.

0686. Motion Picture Animation Techniques. Cr. 4.

Prereq: SPH 0587. Theory and application of various forms of film animation.

0687. Motion Picture Production. Cr. 4.

Prereq: SPH 0587. Problems in producing, directing, shooting, and editing sound motion pictures.

0887. Seminar in Film. Cr. 3 (Max. 6).

Prereq: consent of instructor.

STATISTICS

COURSES OF INSTRUCTION¹ (STA)

0102. Elementary Statistics. Cr. 4.

Prereq: one and one-half years high school algebra. This course is not to be counted as a mathematics course by mathematics majors. Notions in probability; descriptive statistics; binomial and normal distributions; elements of statistical inference (estimation theory and testing hypotheses).

In addition to the interdepartmental course described above, several specialized advanced courses are offered by individual departments:

ECO 0520—Economic and Business Statistics I.

ECO 0521—Economic and Business Statistics II.

ECO 0722—Advanced Econometrics I.

ECO 0723—Advanced Econometrics II.

MAT †0503—Principles of Probability and Statistics.

MAT †0504—Statistical Methods in Industry I.

MAT †0505—Statistical Methods in Industry II.

MAT 0580—Probability and Stochastic Processes I.

MAT 0581—Probability and Stochastic Processes II.

MAT 0582—Survey of Statistical Methods.

MAT 0583—Introduction to Theory of Games.

MAT 0700—Mathematical Statistics I.

MAT 0701—Mathematical Statistics II.

MAT 0781—Mathematical Foundations of Probability.

MAT 0782—Random Functions.

PSY 0310—Statistical Methods in Psychology.

SOC 0602—Social Statistics (S W 0746).

For description of these courses, and others, see the bulletin sections devoted to the individual departments.

The Department of Mathematics offers the degree of Master of Arts with a major in Mathematical Statistics. For particulars, see the mathematics section of the bulletin.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

URBAN PLANNING

Office: 428 Library Court

Chairman: George J. Honzatko

Professor

Mel J. Ravitz, Ph.D.

Associate Professors

George J. Honzatko, Ph.D., Eugene Perle, Ph.D.

Instructor

Gary J. Sands, M.U.P.

Adjunct Faculty

Harold J. Bellamy, M.U.P., Charles A. Blessing, M.C.P., Lawrence R. Greene, M.P.A., J.D., Gerald H. Luedtke, M.C.P., John J. Musial, M.A.

MASTER OF URBAN PLANNING

The profession of urban planning takes major responsibility in the development of comprehensive plans and programs for local communities, as well as larger governmental units. Programs visualize future conditions in light of social, economic and physical change, and provide an estimate of the community's long range needs for various facilities and services. Professional people work in a variety of areas ranging from such immediate concerns as developing plans for housing, transportation and rehabilitation of blighted sections to engaging in efforts to achieve an attractive and efficient community. The department seeks to prepare individuals for roles as urban planning generalists working for local community planning agencies and regional groups.

Admission—The urban planning program is open to all students who qualify for admission to the Graduate Division, and offers graduate courses leading to the degree Master of Urban Planning. Admission to the program is restricted to the fall and spring quarters. Because cross-listed courses from several departments in the College are an integral part of the program, students will face varying academic demands depending on their undergraduate backgrounds. It is recommended that students considering a major in urban planning take the Graduate Record Examination (aptitude section only). Application forms to the department are available from the Admissions Office of the Graduate Division, 116 Administrative Services Building. Applications must be submitted by June 1 (for the fall quarter) and by January 15 (for the spring quarter) to insure consideration for admission.

Degree Requirements—Specific requirements for the degree will be determined in the case of each applicant after the completion of approximately twenty credits in course work. At that time students will develop a *Plan of Work* in consultation with a permanent adviser. In general no less than the two year program recommended by the American Insti-

tute of Planners will be required for the degree. Prior completion of courses equivalent to the requirements will form the only basis for reducing credits in any individual program, but in no case will a program of less than forty-eight credits be approved. The department anticipates that academic work will begin with courses at the 0500 or 0600 level. At present there are several core areas in which applicants must take courses: history and theory; urban structure, and implementation. All *Plans of Work* will include at least twelve credits of course work at the 0700 or 0800 levels, excluding the essay group or thesis.

COURSES OF INSTRUCTION¹ (U P)

History and Theory

0501. Urban Planning Process. Cr. 2 or 4.

Prereq: consent of instructor. Scope and historical development of planning. Topics relevant to the practice of planning including theory, design, planning practice and social and physical development policy. (Formerly Urban Planning 0500).

0511. (HIS 0514) Pre-Twentieth Century American Urban History in Comparative Perspective. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Growth, impact, and significance of the city in American history.

0521. (HIS 0515) Twentieth Century American Cities in World Context. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Growth, impact, and significance of the city in American history.

0531. (ANT 0606) Urban Anthropology (SOC 0606). Cr. 4.

Prereq: ANT 0210, 0520 or consent of instructor. Socio-cultural effects of urbanization in the developing areas of the world, particularly Africa, Latin America, Southeast Asia and India. The process of urbanization, the anthropological approach in the area of urban studies.

0601. Perception of the Urban Environment. Cr. 4.

Modes of perception and interpretation of the three dimensional environment in urban areas; their natural and ambient characteristics. Analysis and development of inventory systems and their potential utility in urban spatial design.

0611. History of Physical Planning. Cr. 4.

Prereq: consent of instructor. Historical and physical aspects of urban planning as an expression of physical function, social order and cultural background.

0621. Contemporary Physical Planning. Cr. 4.

Prereq: consent of instructor. Emphasis on emerging concepts in urban design.

0631. Analysis of Urban Form. Cr. 2 or 4.

Prereq: consent of instructor. Introduction to urban form and the processes involved in development of urban design. The role of the urban designer in the social and technical aspects of community development.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0641. Professional Aspects of Urban Planning. Cr. 2 or 4.
Prereq: consent of instructor. Readings in literature of urban planning. View of planning and planning process.

0671. Regional Development. Cr. 4.
Prereq: consent of instructor. Regional development and planning theory, including concepts of the region. Theoretical influences of transportation, resources, locational economic activity and urban spatial agglomerations and systems to the planning process.

0701. Planning and Decision Theory. Cr. 2 or 4.
Prereq: consent of instructor. Materials addressing the function of planning as a rationalization of social decision making processes. Theories of the planning process as human decision activity. (Formerly Urban Planning 0661).

0751. Seminar in Urbanization and Regional Planning. Cr. 2 or 4.
Prereq: consent of instructor. Nature of regional planning and its relation to urban growth.

Urban Structure

0502. (SOC 0502) Urban Sociology. Cr. 4.
Prereq: consent of instructor. Ecological and social organization of city life. Metropolitan trend in the U.S., social problems created by it; various forms of control.

0532. (GEG 0617) Physical Bases of Urban Ecology. Cr. 4.
Prereq: GEG 0120 or consent of instructor. Physical environment of a city: geology, climate, pollution, water resources, soils and vegetation in an urban context.

0542. (GEG 0618) Selected Urban Problems. Cr. 4.
Prereq: GEG 0313 or consent of instructor. Identification and evaluation of urban problems. Topics to be announced in Schedule of Classes.

0552. (CSC 0501) Computers and Research. Cr. 4.
No credit after CSC 0220 nor for CSC majors. Prereq: one and a half units of high school algebra. Introduction to computing, data processing and computer utilization for research. Computer languages, library programs and their use, and job control languages.

0572. Transportation and Planning. Cr. 4.
Prereq: consent of instructor. Introduction to the role of transportation in the planning process involving both regional and urban considerations.

0582. (ECO 0586) Urban and Regional Economics I. Cr. 4.
Prereq: ECO 0101 and 0102 or consent of instructor. Introduction to urban economics: industrial structure, growth and development, income and employment characteristics, economic foundations of the problems of cities.

0592. (ECO 0587) Urban and Regional Economics II. Cr. 4.
Prereq: U P 0582. Economic determinants of the spatial distribution and interactions of persons, firms, industries and urban places with special reference to systems of cities and public policy relating to the size distribution of cities and the problem of urban-rural balance.

0602. (GEG 0614) The Metropolitan Region. Cr. 4.
Prereq: one course in geography or consent of instructor. Metropolitan and megalopolitan structures; emphasis on processes.

0612. (GEG 0613) Advanced Urban Geography. Cr. 4.
Prereq: GEG 0313 or consent of instructor. Analysis of urban patterns and functions.

0632. (GEG 0615) Internal Structure of the City. Cr. 4.
Prereq: GEG 0313 or 0613 or consent of instructor. Analysis of the internal make-up of the city.

0642. (SOC 0620) Social Change and Social Planning. Cr. 4.
Prereq: consent of instructor. Theories of social change; possibilities and limitations of social planning. History of outstanding planning experiments; case studies from industry, government, community planning. Social techniques aimed at promoting or resisting planned social change. Field trips in Detroit industry, government planning departments.

0652. (P S 0650) Problems in Urban-Metropolitan Government. Cr. 4 (Max. 8).
Prereq: consent of instructor. Problems of current significance.

0672. Quantitative Methods I. Cr. 4.
Prereq: consent of instructor. Statistical inference with emphasis on theory and applications, including central tendency, dispersion, hypothesis testing, correlation and regression.

0692. Quantitative Methods II. Cr. 4.
Prereq: U P 0672 or equiv. Multivariate analysis and computers with emphasis on theory and applications, including: matrix algebra, vector spaces, linear and non-linear models, principal components analysis, graph theory, and programming models.

0702. (SOC 0702) Problems of Urban Society. Cr. 2-4.
Prereq: consent of instructor. Application of social science research; theories underlying different approaches to applied sociology; value assumptions of planning commissions and administrative agencies.

0712. Methods in Urban Planning. Cr. 2 or 4.
Prereq: consent of instructor. Application of selected research approaches in urban planning studies.

0732. Planning Studio I. Cr. 4.
Prereq: consent of instructor. Spatial study of urban areas, with special reference to land use, circulation and design concepts for such functional units as residential neighborhoods, shopping centers and open space.

0742. Planning Studio II. (2,4). Cr. 4.
Prereq: consent of instructor. Continuation of Urban Planning 0732. Analysis and development of community plan. Decision making roles in urban design.

0752. Urban Systems Models. Cr. 4.
Prereq: U P 0672 and consent of instructor. Structure of urban systems and interdependencies among subsystems. Predictive growth models with emphasis on regional land use, transportation and communication system models.

0762. Gaming Simulation. Cr. 4.
Prereq: consent of instructor. Introduction to game theory and the application of gaming simulation to urban and regional studies.

0802. Projects in Urban Planning Techniques. Cr. 2 or 4 (Max. 12).
Prereq: consent of instructor. Development and application of research design to specified urban problems, with emphasis on independent study.

0812. Seminar in Land Use Planning. Cr. 4 (Max. 8).

Prereq: consent of instructor. Analysis of development plans for new and existing communities, selected topics.

Planning Implementation

0525. (ECO 0515) State and Local Finance. Cr. 4.

Prereq: consent of instructor. Taxation, expenditure and debt management problems of state and local governments; grants-in-aid, subsidies, shared revenues and coordination of the financial policies of federal, state, local governments. Attention to problems, policies, and practices of governmental units in Michigan and other states.

0535. (P S 0511) Public Opinion and the Political Process (SOC 0511). Cr. 4.

Prereq: consent of instructor. Role of public opinion in the political system. Factors important in the formation of political opinions; assessment of the consequences of the opinions of mass and specialized publics for the political decision-making process.

0545. (P S 0533) Bureaucracy, Public Policy, and Power Structure. Cr. 4.

Prereq: consent of instructor. Theory and development of modern governmental bureaucracy, its role in development of public policy. Co-optation and constituency building; role of bureaucracy in power structure.

0555. (P S 0552) Analysis of Urban Political Systems. Cr. 4.

Prereq: consent of instructor. Alternative interpretations of forces shaping metropolitan growth. Interaction of community groups, power structure, intergovernmental relations.

0565. (P S 0563) Program Planning, Evaluation, and Budgeting (IE 0565) (S W 0870). Cr. 4 (Max. 4 for L.A. students; others Max. 12).

Prereq: consent of instructor. Theory and practice of modern planning, evaluation, and budgeting, with specific applications to urban programs in education, health, housing, and police services.

0585. (P S 0520) Introduction to Public Administration. Cr. 4.

Prereq: P S 0101 or consent of instructor. Governmental structure and administrative organization. Concepts and techniques of public management; impact on modern society.

0595. (P S 0540) American Legal Systems and Processes. Cr. 4.

Prereq: P S 0101. Legal institutions, processes and doctrines; their relation to the formulation of public policy and solution of social problems.

0605. Legal Aspects of Planning. Cr. 4.

Prereq: consent of instructor. Status of legal issues concerning urban planning activity and implementation. Implications for planning practice, scope of police powers, intergovernmental relations and plan authority.

0615. Urban Renewal. Cr. 2 or 4.

Prereq: consent of instructor. Urban renewal in comprehensive planning, covering such topics as the workable program, community renewal program and area redevelopment.

0635. (P S 0630) Administrative Decision Making. Cr. 4.

Prereq: P S 0520 or consent of instructor. Theories and processes of decision making to isolate factors shaping decisions. Use of simulation; case studies.

0645. (SOC 0646) Dynamics of Social Action. Cr. 4.

Prereq: consent of instructor. Nature, theory, forms of social action in American society; organization and planning for social action; relationship of social action and social change.

0655. Social Planning. Cr. 4.

Prereq: consent of instructor. The social planning process as a comprehensive, problem and goal-oriented approach to community welfare and urban problem solving.

0665. Social Policy Planning. Cr. 4.

Prereq: consent of instructor. Scope of social planning in urban areas and its relation to the total development process of communities.

0675. Land Use Controls. Cr. 2 or 4.

Prereq: consent of instructor. Discussion of techniques available to guide land development. New concepts in zoning, subdivision regulations. Timing and sequence of land development. (Formerly Urban Planning 0705.)

0685. (GEG 0626) Problems of Resource Management and Development. Cr. 4.

Prereq: one course in geography or consent of instructor. Selected problems in resource management and resource development.

0715. Seminar in Fiscal Aspects of Urban Planning. Cr. 4.

Prereq: consent of instructor. Costs and revenues of urban development in relation to land uses.

0725. (SOC 0703) Urban Stratification and Power Structure. Cr. 4.

Prereq: consent of instructor. Social class and power structure in metropolitan community; community power and decision-making emphasizing the process of urban planning.

0735. (P S 0734) Administrative Aspects of Urban Planning (SOC 0704). Cr. 4.

Prereq: consent of instructor. Goals and policy structure for urban planning, regional planning, zoning, and related administrative problems.

0755. (P S 0747) Urban Political and Social Change. Cr. 4 (Max. 4 for L.A. students; others Max. 12).

Prereq: admission to Urban Studies Corps of Center for Urban Studies. Problems in policy of housing, health, employment, education, and environmental pollution. Power and the contributions of various disciplines to programs of effective political and social change.

0765. (P S 0772) Regional and Metropolitan Systems. Cr. 4.

Prereq: consent of instructor. Special district authorities, councils of governments, regional economic authorities, and other structures designed to facilitate collaboration across subnational and national boundaries.

0775. (P S 0771) Intersystem Relations. Cr. 4.

Relations between organizations, municipalities and other metropolitan area authorities, and different levels of government.

Other Courses

0530. Urban Planning Issues. Cr. 2 or 4 (Max. 12).

Prereq: consent of instructor. Domestic and international developments in urban planning. Topics to be announced in Schedule of Classes.

0540. Planning Workshop I. Cr. 4.

Prereq: consent of instructor. Selected aspects of the community planning process as a team effort. Techniques of planning practice.

0550. Planning Workshop II. Cr. 4.

Prereq: consent of instructor. Continuation of Urban Planning 0540. Renewal planning as a part of the community development process.

0560. Housing Development. Cr. 4.

Prereq: consent of instructor. Its physical, social, and economic aspects, dealing with new development as well as rehabilitation.

0600. Introductory Planning Topics. Cr. 4 (Max. 12).

Prereq: consent of instructor. Development and focus of emerging trends in the profession.

0797. Seminar. Cr. 2 or 4 (Max. 16).

Prereq: consent of instructor. Specialized study and research. Topics to be announced in Schedule of Classes.

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

Prereq: consent of adviser.

0800. Projects in Urban Planning. Cr. 2-4 (Max. 12).

Prereq: consent of instructor. Individual problems in planning.

0890. Directed Study. Cr. 2-8 (Max. 12).

Prereq: consent of adviser; written consent of graduate officer. Independent reading and research.

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

Prereq: consent of adviser.



URBAN STUDIES CO-MAJOR PROGRAM

Office: 337 Justice Institute, 6001 Cass Avenue

Director: Louis L. Friedland

Urban Studies Co-major Program is an undergraduate *inter-disciplinary* course of study leading to a bachelor's degree with a co-major designation. It is designed for those desirous of a co-major which will provide a multi-faceted understanding for students interested in urban government and politics, urban society and culture, the physical and economic urban environment, and the history of cities and urban institutions.

Admission — A student must have met the entrance requirements of the University and the College of Liberal Arts to apply for this program. He must acquire at the beginning of his junior year a *Declaration of Major Form* on which he has authorized approval for his major at which time he may then apply for acceptance into the Urban Studies Co-major Program.

Requirements — A student needs to fulfill only the core requirements, although he must elect additional courses in order to receive the transcript notation.

Core Requirements:

	<i>credits</i>
Urban Studies—0200—Introduction to Urban Studies	4
Urban Studies—0400 Field Study	4
Urban Studies—0501 Pro-Seminar	4
Urban Studies—0502 Pro-Seminar	4
Urban Studies—0503 Pro-Seminar	4

Electives — The student must fulfill the core requirements and elect a maximum of twenty-four credits in elective courses for a total of forty-four credits.

Electives*

- Anthropology 0606 (SOC 0606) (U P 0531). Urban Anthropology. Cr. 4.
- Biology 0100. Man and His Environment. Cr. 3.
- Economics 0586 (U P 0582). Urban-Regional Economics I. Cr. 4.
- Geography 0613 (U P 0612). Introduction to Urban Geography. Cr. 4.
- Geography 0614. The Metropolitan Region. Cr. 4.
- History 0314. The Negro's Experience in America I, 1619-1865. Cr. 4.
- History 0315. The Negro's Experience in America II, 1865 to the Present. Cr. 4.
- History 0514 (U P 0511). Rise of Urban America I to 1860. Cr. 4.
- History 0515 (U P 0521). Rise of Urban America II since 1860. Cr. 4.
- History 0614. Comparative World Cities I. Cr. 4.
- Political Science 0650 (U P 0652). Problems in Urban Metropolitan Government. Cr. 4.
- Psychology 0360. Psychology of Social Behavior. Cr. 4.
- Psychology 0563. Group Dynamics. Cr. 4.
- Psychology 0564. Attitudes. Cr. 4.
- Sociology 0202. Social Problems. Cr. 4.
- Sociology 0502 (U P 0502). Urban Sociology. Cr. 4.
- Sociology 0508. Race Relations in the United States. Cr. 4.
- Urban Planning 0615. Urban Renewal. Cr. 2 or 4.

*Twenty-four credits throughout University may be elected; other courses not listed above may be available.

Courses included in the program of Urban Studies may count toward a departmental major as well as the core requirements of the electives of the co-major program.

COURSES OF INSTRUCTION¹ (U S)

0200. Introduction to Urban Studies. Cr. 4-5.

Prereq: sophomore standing. Urban phenomena including the quality and nature of urban life; major concerns of urban areas; perspectives and techniques of various disciplines for grappling with urban problems. Topics to be announced in Schedule of Classes.

0400. Field Study. (0,4 or 2,2). Cr. 4.

Prereq: U S 0200. Practicum in planned field work.

0501. Pro-Seminar. Cr. 4.

Undergraduate credit only. Interdisciplinary topics to be announced in Schedule of Classes.

0502. Pro-Seminar. Cr. 4.

Undergraduate credit only. Interdisciplinary topics to be announced in Schedule of Classes.

0503. Pro-Seminar. Cr. 4.

Undergraduate credit only. Interdisciplinary topics to be announced in Schedule of Classes.



¹ See page 536 for interpretation of numbering system, signs and abbreviations.

DIVISION OF HEALTH AND PHYSICAL EDUCATION

Office: 261 Matthaei Building

Director: Chalmer G. Hixson

Professors

Gertrude B. Couch, Ph.D., Chalmer G. Hixson, Ed.D., Dorothy M. LaSalle, Ed.D. (Emeritus), Joel G. Mason, M.S., Ruth L. Murray, M.A. (Emeritus), Frank L. Oktavec, Ph.D. (Emeritus), Laurence E. Russell, M.A., Alden W. Thompson, M.A. (Emeritus), William N. Wasson, Ed.D.

Associate Professors

David L. Blievernicht, Ph.D., Newman H. Ertell, M.A. (Emeritus), Jane C. Fink, M.A., Vernon K. Gale, M.A., Leon A. Lande, Ed.D., Robert J. Lueft, P.E.D., Frank A. McBride, Ph.D., Frederick A. Mulhauser, Ph.D., Julia M. Sanford, M.A. (Emeritus), Herbert L. Smith, M.Ed. (Emeritus), Jean A. Stanicek, M.A., Richard A. Swanson, Ph.D., Robert C. White, M.A.

Assistant Professors

Jacqueline A. Dailey, M.S., Istvan J. Danosi, Master's Dipl., Frank J. Gompert, B.S., David F. Hoover, M.Ed., Avanelle Kidwell, M.A., Alice E. Kildea, M.S., Charles H. Lewis, M.A., Christ Petrouleas, M.Ed., Diane C. Pick, R.E.D., Georgia Reid, M.A., Peter A. Roberts, M.A., Robert T. Samaras, Ed.D., Samuel W. Sample, M.S., William A. Saville, Ph.D., William W. Sloan, M.A., Ann G. Zirulnik, B.S.

Instructors

Alex Cushnier, B.A., Derwood L. Drobot, M.Ed., Amy B. Ellsworth, B.A., David C. Fiscella, M.A., Eva M. Jablonowski, B.S., Thomas R. Vaughn, M.S., Danny R. Watkins, B.S.

PHYSICAL EDUCATION

Six credits in approved physical education courses may be granted toward a degree. The same course may not be repeated except as otherwise noted. Some of the colleges and schools require two credits in physical education for graduation. For those students currently enrolled in the College of Liberal Arts, but planning to earn a degree later in some other college or school, it may be advisable to enroll in physical education during the freshman year.

Physical education, as an integral part of a general education, focuses attention upon the vital needs of the human organism for regular participation in physical activity. The decreased demands for physical vigor, as well as the increased tensions caused by the technological progress of the modern era, demand a scientific approach to this vital phase of well-being.

The goals may be stated as follows: (1) to instruct, by lecture, in the scientific bases of physical activity; (2) to instruct, by motor learning experience, in skills selected for study.

HEALTH RATING

All students enrolled in physical education courses must present a health card to the course instructor. This card is issued by the University Health Service and indicates the student's health rating. Ratings given are:

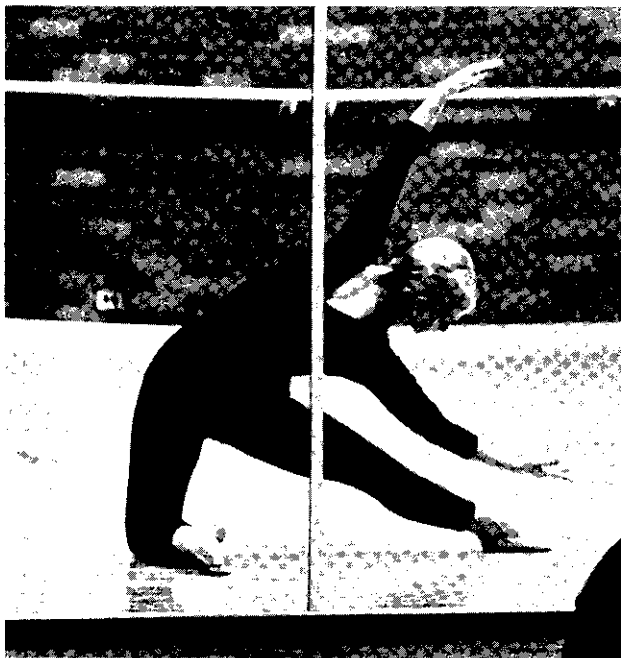
- A Students may participate in any course listed.
- B1 Limited activity. Students may participate in all but a few specified types of activity.
- B2 Limited activity. Students may not participate in contact-competitive sports and the extent of participation in other activities will be specified.
- B3 Limited activity. Students may participate in only a few specified activities.
- C Students may enroll only in the "Individual Physical Education" courses where activities are prescribed on an individual basis by the University Health Service.

PROFESSIONAL PROGRAMS

Professional programs in the Division of Health and Physical Education include:

Undergraduate

- Dance concentration
- Health and Physical Education major
- Health Education minor
- Recreation and Park Services major



Graduate

- Dance concentration
- Health Education
- Physical Education
- Recreation and Park Services

Professional program descriptions may be found in the College of Education section.

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 organized and administered by the Women's Recreation Association; intramural athletics for men; intercollegiate sports for men in team and individual sports.

COURSES OF INSTRUCTION¹

Dance (DNC)

0101. Contemporary Dance I. Cr. 2.

Basic movement techniques and improvisational experiences in dance; films and concert viewing.

0102. Contemporary Dance II. Cr. 2.

Prereq: DNC 0101 or equiv. Continuation of Dance 0101 on an intermediate level.

0103. Contemporary Dance III. Cr. 2.

Prereq: DNC 0102 or equiv. Continuation of Dance 0102 on a more advanced technical level; principles of dance composition.

0111. International Folk Dances I. Cr. 1.

Introduction to the style and form of folk dances.

0112. International Folk Dances II. Cr. 1.

Prereq: DNC 0111 or equiv. Continuation of Dance 0111 on a more advanced level.

0113. International Folk Dances III. Cr. 1.

Prereq: DNC 0112 or equiv. Continued investigation of folk dances of increasing complexity.

0115. American Square and Round Dances. Cr. 1.

Traditional and contemporary American squares, rounds, contras, and mixers.

0117. Social Dance Forms. Cr. 1.

Dance steps, figures, patterns, style, etiquette; historical sources of ballroom dance since the Renaissance.

0121. Fundamentals of Classic Ballet I. Cr. 1.

Fundamental techniques of classic ballet; emphasis on analysis, proper execution.

0122. Fundamentals of Classic Ballet II. Cr. 1.

Prereq: DNC 0121 or equiv. Continuation of Dance 0121.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0123. Fundamentals of Classic Ballet III. Cr. 1.

Prereq: DNC 0122 or equiv. Continuation of work done in Dance 0121 and 0122.

0131. Introduction to Contemporary Dance. Cr. 2.

Required for dance minors; others by consent of instructor. The dance environment; modern, ethnic, and classic concert styles; dance relationships to music, drama and the visual arts; bibliographical resources for study. Field trips.

0161. Apprentice Dance Group. Cr. 1-3 (Max. 3).

Prereq: DNC 0101 or equiv. Participation in technique, creative, and performing activities.

0201. Technique Laboratory I. Cr. 1-3.

Prereq: DNC 0103 or equiv. Required for dance minors. Participation in dance technique of increasing difficulty and complexity.

0231. History of Dance Since 1800. Cr. 2.

Required for dance minors; others by consent of instructor. Historical development of dance through the nineteenth and twentieth centuries; theatre and concert dance.

0241. Music and Dance Relationships. Cr. 2.

Development of movement response to the temporal elements common to both music and dance; dance-related music literature.

0242. Music for Choreography. Cr. 2.

Prereq: DNC 0241 and 0555 or equiv. Exploring modern methods of creating music for choreography geared to include students with minimal musical training. Laboratory experiences include the use of tape, percussion, voice, prepared piano, sound manipulation, chance theory, improvisation and other contemporary techniques.

0243. Accompaniment for Dance. Cr. 2.

Prereq: competency in piano and percussion; background in more than one style of music literature. Modern, ballet, jazz and ethnic dance accompaniment; techniques of improvisation, examination of dance and music style and form; survey of music resources.

0301. Technique Laboratory II. Cr. 1-3.

Prereq: DNC 0201 or consent of instructor. Required for dance minors. Continuation of Dance 0201.

0311. Ethnic Dance Forms. Cr. 2.

Required for dance minors; others by consent of instructor. Folk and ethnic dance, and dance styles of selected historical periods; their development from the ritual matrix into recreational forms.

0331. Dance Production. Cr. 2.

Required for dance minors. Various types of dance production including an examination of purpose and content; technical considerations such as costumes, makeup, lighting and decor; the management of performance-related matters.

0361. University Dance Workshop I. Cr. 1-3 (Max. 3).

Prereq: consent of instructor. Open only to students with performing experience in dance. Admission by audition.

0401. Technique Laboratory III. Cr. 1-3.

Prereq: DNC 0301 or consent of instructor. Required for dance minors. Continuation of Dance 0301.

0501. Workshop in Contemporary Dance. Cr. 1-3 (Max. 3).

Prereq: consent of instructor. A concentrated period of advanced dance study in technique, composition and repertory, usually with a visiting artist.

0541. Dance Notation I. Cr. 3.

Background in movement or dance is desirable. Labanotation of dance and movement; survey of other systems.

0542. Dance Notation II. Cr. 3.

Prereq: DNC 0541 or equiv. Continuation of Dance 0541.

0555. Contemporary Dance Choreography I. Cr. 3.

Prereq: DNC 0103 or equiv. Required for dance minors. Construction of dances in group forms using approaches based on music, properties, chance and thematic materials. (Formerly Dance 0451).

0556. Contemporary Dance Choreography II. Cr. 3.

Prereq: DNC 0555 or equiv. Construction of dances; aesthetic considerations and preparation for performance; advanced individual problems. (Formerly Dance 0551.)

0561. University Dance Workshop II. Cr. 1-3 (Max. 3).

Prereq: DNC 0361 or consent of instructor. Continuation of Dance 0361.

0571. (SPH 0561) Form and Styles of Theatre Jazz Dance. Cr. 1.

Prereq: consent of instructor. Techniques and styles of jazz dance as a foundation in the dance idiom.

0580. Repertory. Cr. 1-4.

Prereq: DNC 0301 or equiv.; audition or consent of instructor. Learning, for performance, of standard modern repertory, or for dances previously choreographed by instructor.

0590. Independent Study in Dance. Cr. 1-4.

Prereq: minor in dance and consent of instructor. Independent work in dance under faculty guidance.

Health (HEA)

0281. Dynamics of Personal Health. Cr. 3.

Critical health issues relevant to today's college student; application to his personal and family needs.

0282. Dynamics of Environmental Health. Cr. 3.

Ecological factors associated with human health; environmental pollution, over-population, world health problems and organized community efforts to deal with them. Field trips.

0283. First Aid. Cr. 2.

Theory and practice. Students can qualify for standard national certification examination in first aid.

0285. Health: A Quality of Life. Cr. 1-3 (Max. 12).

Series of mini health courses each meeting for twelve clock hours for one credit. Taught by a team of health education specialists in related fields. Students may select from the following: I Orientation to Human Health; II Drug Use in Modern Society; III Human Society; IV Nutrition, Weight Control and Fitness; V Life Cycle and Aging; VI Ecological Factors in Health; VII Self Actualization Through Health Behavior; VIII Coping with Death and Dying; IX Economic Aspects of Health Care; X Stress, Emotions and Physical Health. Topics to be announced in Schedule of Classes.

0383. Advanced First Aid and Emergency Care. Cr. 3.

Prereq: HEA 0283; for students eighteen years of age or older;

will qualify one for the American Red Cross Advanced First Aid and Emergency Care Certification. Comparable to Emergency Medical Service personnel training.

0386. Individual Problems in Health. Cr. 1-4 (Max. 4).

Prereq: HEA 0281 and 0282 or 0285 (minimum of six credits) and consent of the instructor. Solving a specific problem under the guidance of the divisional staff.

0387. Physiology of Exercise. Cr. 3.

Prereq: 9 credits in human anatomy and physiology. Human functions and their response to physical stress.

0388. Kinesiology. Cr. 3.

Prereq: 9 credits in human anatomy and physiology. Application of knowledge of human physical structure and function in the analysis and appreciation of human movement; theory and practice of human movement analytic techniques.

Physical Education (P E)

Basic Instruction

0106. Individual Physical Education. Cr. 1-4 (Max. 4).

Prereq: consent of divisional director. For students with a B or C health examination rating. Individualized activities under supervision.

Aquatics

0110. Elementary Swimming. Cr. 1.

Fundamental skills and knowledge in aquatics for beginners.

0111. Intermediate Swimming. Cr. 1.

Prereq: elementary swimming test. Theory and practice of basic swimming strokes and beginning diving techniques.

0120. Lifesaving and Water Safety. Cr. 1.

Prereq: advanced swimmer. Lifesaving and water safety procedures studied and practiced with successful course completion leading to lifesaving certification.

0121. Diving. Cr. 1.

Prereq: P E 0111 or intermediate swimming test. Analysis and practice of diving techniques.

0210. Synchronized Swimming. Cr. 1.

Practical and theoretical techniques of synchronized and rhythmic swimming. Basic and advanced stunts and formations, adaptation of swimming strokes, selection of suitable music and appropriate costume, demonstration of the resultant skill in a culminating performance.

0211. Intermediate Synchronized Swimming. Cr. 1.

Prereq: advanced swimming ability, P E 0210, or consent of instructor. Continuation of the current class; more advanced work in various skills areas.

0212. Advanced Synchronized Swimming. Cr. 1.

Prereq: advanced swimming ability and P E 0210 or consent of

instructor. To realize interest in synchronized swimming by improving personal skills and developing routines and coaching abilities.

0220. Scuba Diving. Cr. 2.

Prereq: P E 0120 and medical approval by University Health Service. Theory and practice of the proper use of self-contained underwater breathing apparatus.

0320. Aquatic Leadership. Cr. 3.

Prereq: P E 0120. Instructional methods and techniques in aquatics, water safety and survival; swimming program development; pool and waterfront administration and management. American Red Cross Water Safety Instructor's Certificate can be achieved.

Individual Sports

0125. Badminton. Cr. 1.

Analysis and practice of basic strokes, singles and doubles play, strategy, rule interpretation.

0126. Tennis. Cr. 1.

Analysis and practice of basic strokes, singles and doubles play, strategy, rule interpretation.

0127. Paddleball. Cr. 1.

Prereq: current health card. Basic skills and technique; history, rules, equipment and game courtesy.

0128. Squash: Women. Cr. 1.

Analysis and practice of basic strokes, strategy, rule interpretation.

0129. Skiing. Cr. 1.

Analysis and practice of basic skills and techniques, safety, selection, purchase and care of equipment. Taught at local ski slope.

0130. Conditioning for Snow Skiing. Cr. 1.

Prereq: beginning skills of snow skiing. Analysis and practice of basic skills and techniques, prescribed conditioning activities and simulated skiing.

0131. Alpinism-Rock Climbing. Cr. 1.

Prereq: good physical condition. Introduction to the basic principles and techniques of technical rock climbing. Field trips.

0133. Squash: Men. Cr. 1.

Analysis and practice of basic strokes, strategy, rule interpretation.

0134. Handball: Men. Cr. 1

Analysis and practice of skills, singles and doubles play, strategy, rule interpretation.

0135. Archery. Cr. 1.

Analysis and practice of skills, information on scoring, rules, tournament competition.

0136. Bowling. Cr. 1.

Analysis and practice of skills. Information on scoring procedures, rules, tournament play.

0137. Golf. Cr. 1.

Analysis and practice of fundamentals focused on development of correct form in the use of different clubs.

0138. Billiards-Pool. Cr. 1.

Basic skills and technique; history, rules, equipment and game courtesy.

0226. Advanced Tennis. Cr. 1.

Prereq: P E 0126 or consent of instructor.

0229. Advanced Skiing. Cr. 1.

Prereq: P E 0129 or equiv. Taught at local ski slopes.

0233. Advanced Squash. Cr. 1.

Prereq: consent of instructor. Advanced course in squash racquets; instruction in and practice of skills and strategies needed for tournament competition; rules and officiating procedures.

0234. Advanced Handball. Cr. 1.

Prereq: consent of instructor. Review of basic skills and understanding of handball with concentration on advanced techniques.

0236. Advanced Bowling. Cr. 1.

Prereq: P E 0136; men's average, at least 150; women's average, at least 130. Complete exposition of advanced bowling technique; physics and physiology applied to bowling. Systems to develop strike lines and to convert splits and spares.

Developmental Activities

0141. Movement for Form and Fitness: Women. Cr. 1.

Understanding and application of the principles of human movement as they relate to posture, body mechanics, and the movement demands of everyday living. Posture evaluation, body conditioning, correction of certain defects.

0142. Stunts and Tumbling. Cr. 1.

Analysis and practice of elementary techniques in mat tumbling, trampoline, vaulting, hand-balancing, floor calisthenics. (Formerly Physical Education 0145.)

0143. Men's Gymnastic Events. Cr. 1.

Prereq: P E 0142 or consent of instructor. Analysis and practice of basic gymnastic techniques and events: floor exercise and apparatus.

0144. Women's Gymnastic Events. Cr. 1.

Prereq: P E 0142 or consent of instructor. Analysis and practice of basic gymnastic techniques and events. (Formerly Physical Education 0140.)

0146. Aerobics. Cr. 1.

Carefully controlled, personalized program activities designed to maintain or improve the level of cardiorespiratory conditioning of the participant; prescription for future levels of activity from the class experience.

0147. Weightlifting and Training: Men. Cr. 1.

Analysis and practice of approved lifting techniques and use of weight training for conditioning purposes.

0243. Advanced Apparatus: Men. Cr. 1.

Prereq: P E 0143 or consent of instructor. Analysis and practice of advanced techniques involving the use of apparatus included in competitive gymnastics programs. (Formerly Physical Education 0245.)

0244. Advanced Apparatus: Women. Cr. 1.

Prereq: P E 0144 or consent of instructor. Analysis and practice of advanced techniques involving the use of apparatus included in competitive gymnastic programs.

0356. Individualized Skills Development Laboratory. Cr. 1-4. (Max. 4).

Prereq: written consent of coordinator. Physical education credit for significant development and improvement of skills and associated knowledge in activity areas beyond the purview of the general education curriculum of the Division.

Combatives

0151. Personal Defense: Women. Cr. 1.

Analysis and practice of a variety of defense skills for use in warding off attacks on one's person.

0153. Wrestling: Men. Cr. 1.

Analysis and practice of fundamental skills, rules, strategy, conduct of amateur matches.

0154. Beginning Judo. Cr. 1.

Analysis and practice of fundamental skills; strategy and philosophy of judo as a method of personal defense and competitive sport.

0155. Beginning Karate. Cr. 1.

Analysis and practice of fundamental skills; strategy and philosophy of karate as a method of personal defense and competitive sport.

0156. Beginning Aikido. Cr. 1.

Analysis and practice of fundamental skills; strategy and philosophy of aikido as a method of personal defense.

0157. Fencing. Cr. 1.

Analysis and practice of skills, rules, strategy, conduct of competitive meets.

0257. Advanced Fencing. Cr. 1.

Prereq: P E 0157, or consent of instructor.

Team Sports

0171. Field Hockey: Women. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0172. Power Volleyball: Women. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0173. Soccer-Speedball: Women. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0174. Basketball: Women. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0175. Curling. Cr. 1.

Prereq: current health card. Basic skills and techniques; rules, history and equipment.

0176. Soccer: Men. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0177. Touch Football: Men. Cr. 1.

Analysis and participation in the skills and game patterns of touch football with special emphasis on team play and rule interpretation.

0178. Field Lacrosse. Cr. 1.

Skills, knowledge of rules and strategies of playing field lacrosse; history and social significance of the activity.

0179. Power Volleyball: Men. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0180. Basketball: Men. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0252. Baseball Officiating. Cr. 2.

Prereq: playing experience in baseball. Competence in umpiring baseball; skills, rules, personal preparation, umpiring in schools and colleges; organizations of umpires; supplementary officials; opportunity for certification.

0253. Basketball Officiating. Cr. 2.

Prereq: playing experience in basketball. Competence in officiating basketball; skills, mechanics, signals, rules and interpretations, personal preparation, officials associations, supplementary officials; opportunity for certification.

0254. Football Officiating. Cr. 2.

Prereq: playing experience in football. Competence in officiating football; skills, mechanics, signals, rules and interpretation, personal preparation, officials associations, supplementary officials; opportunity for certification.

INTERDISCIPLINARY LIBERAL ARTS

COURSES OF INSTRUCTION¹ (ID)

The courses listed here are of an interdisciplinary nature. They reflect the development of programs to meet the needs of students for study covering a wide range of substantive areas, particularly those of strong current interest.

0190. Contemporary Issues and Problems. Cr. 1-4 (Max. 8).

Offered for S and U grades only. Lectures, assigned readings, class discussion on topics of current significance, with emphasis on an academic, objective study of current problems and crises.

0390. Black Studies. Cr. 4 (Max. 12).

International perspective on the implication of power, oppression and struggles in the black world. Topics to be announced in Schedule of Classes.

0590. Black Studies. Cr. 3 or 6 (Max. 6).

Open only to law students for six credits; others must elect two successive quarters of three undergraduate credits. Topics to be announced in Schedule of Classes.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.





College of Lifelong Learning

THE COLLEGE

CONCEPT

By action of the University's Board of Governors on July 6, 1973, the College of Lifelong Learning was created to replace but continue the functions of the Division of Urban Extension. This new college is designed to provide more coherent curricula for the part-time adult student who cannot participate in programs on the main campus. It is for the "societal adult" who because of work and/or family responsibilities finds his or her educational needs difficult to fulfill in conventional campus settings. It seeks to integrate the learning processes of life and career.

Serving many segments of the population, the College attempts to fill the individual aspirations of those who must receive academic guidance and preparation before they can enter college, those who seek assistance to prepare them for new careers, and those with professional skills, who seek expanded education in their present position. As a result, a wide range of programs and courses are offered throughout southeastern Michigan at times and places convenient for adults.

PROGRAMS

The College offers programs at the graduate and undergraduate levels for the College of Education, College of Engineering, College of Liberal Arts, College of Nursing, College of Pharmacy and Allied Health Professions, Monteith College, School of Business Administration, Division of Health and Physical Education and School of Social Work. In addition, certain courses are offered by the College itself. The Bachelor of General Studies degree is offered in the Weekend Studies Program.

The College arranges special programs for groups, companies, institutions to fill specific needs. These can be scheduled at the times and locations most convenient for the group.

Many non-credit programs are offered through the *Applied Management and Technology Center* and the *University Center for Adult Education*. AMTC specializes in designing and updating practical instruction for people working in business and industry. The UCAE programs, given through the University of Michigan and Wayne State University, concentrate on the humanities, the behavioral sciences and natural history. Their classrooms range from Detroit and Ann Arbor to the Detroit Zoological Gardens and Kensington Metropolitan Park. Concerned with the nature of man and society, the courses reflect man's constantly changing needs. Most of the UCAE instructors come from the sponsoring institutions.

The college also offers programs through the *Conferences and Institutes Department of the McGregor Memorial Conference Center* and the *Community Extension Center*. Conferences and Institutes programs may provide credit or non-credit, on and off the main campus, for professional, vocational and community groups.

The *Community Extension Center* is an experimental urban education and community service program in the inner city of Detroit. It provides better contact between University services and specific needs of residents which are not served by the larger community. In content and design, this multi-purpose program is geared to starting where persons or community groups are and proceeding toward helping them to a point in learning at which they can help themselves. In doing so, C.E.C. uses many of the same techniques that worked so well in rural areas in the past to address the needs generated by contemporary problems of urban, inner-city life. Its activities include College Credit Programs, University Career Development Institute, career and educational development for parents of Head Start enrollees in the Detroit Public Schools, non-career and educational development programs for adults with less than a high school education, the Robert Tindal Consumer Education Institute and a variety of cultural, recreational and community service programs.

For additional information, telephone the following:

A M T C	577-4710
Community Extension Center	577-4701
Conferences and Institutes	577-2400
Counseling	358-2104
Registration	358-2104
University Center for Adult Education	577-4665

ACADEMIC REGULATIONS

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the College of Lifelong Learning.

ADMISSION

All 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 program of study (either graduate or undergraduate) and are in good standing will have the course credits and grades recorded on their transcripts. Those who have not been fully admitted to a degree program at Wayne State University will be registered with "limited status."

The appropriate admission requirements and application procedures must be satisfied before credit will be applied toward a degree program. Students are urged to process application and admission procedures with the University for completion of programs consistent with their goals and purposes.

REGISTRATION

Each student in the College of Lifelong Learning is required at the beginning of each quarter of attendance to register according to the procedure described in the *Schedule of Classes* and on the *Program Request* form. Students who have not submitted registration materials by the close of the second class meeting are not permitted to register for credit in any course.

Students are responsible for their registration action. Courses should be selected carefully in terms of institutional requirements for the particular degree or certificate sought. Degree-seeking students should consult their academic advisers and the appropriate college curriculum prior to registration. Registration forms — Requests for the College of Lifelong Learning class schedule and registration materials should be directed to: Wayne State University, College of Lifelong Learning, Southfield Center, Office of Student Services, 25610 West Eleven Mile Road, Southfield, Michigan 48076, Telephone: 358-2104.

Please note that College of Lifelong Learning registration forms and fees are not the same as, nor interchangeable with, the forms and fees in other University programs. Students who desire during the same quarter to register concurrently for off-campus and on-campus submit separate registration for such elections.

Students may register continuously from the beginning of the early registration period until the end of the official final registration period for each quarter. Completed registration forms for credit courses may be submitted through the mail or may be presented at the Southfield Office, 25610 West Eleven Mile Road, Southfield, Michigan 48076. Mailed registrations should be received two weeks prior to the first scheduled class meeting. Full payment of fees must be included with the registration materials. *Do not send cash.*

Students wishing to elect more than one credit course should register for all courses on one registration form. In completing registration forms, the student should indicate the level of credit he expects. Students are responsible to observe individual course prerequisites and restrictions.

All registrations for audit must have the approval of the dean through the college's Student Services Office.

FEES

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

For courses offered by the College of Lifelong Learning: \$27.00 per credit hour (two hours minimum charge).

For courses offered by the Community Extension Center: \$18.50 per credit hour (two hours minimum charge).

For courses offered in the Weekend College:

Credit Hours	Fee
1—4	\$108.00
5	135.00
6	162.00
7	189.00
8	216.00
9—16	234.50
Each credit over 16	27.00

Split Programs — Students whose programs are split between Community Extension and Weekend College courses are assessed at Community Extension Center rates, to a maximum charge of \$234.50. Programs split between the College of Lifelong Learning and the Weekend College are assessed at Lifelong Learning rates. Programs split between the College of Lifelong Learning and the Community Extension Center, as well as courses elected from other areas of the University, are assessed separately.

COURSES OF INSTRUCTION¹

Humanistic and Social Studies (HSS)

1502. Urban Communication Skills. Cr. 4 (Max. 12).

Prereq: high school graduate or G.E.D. completion. For beginning students who have not completed freshman English and speech. Interdisciplinary (English, speech and reading lab) team teaching approach to development of total communication skills. Involves full year's work; students' work to be programmed on the basis of their individual needs. Utilization of lecture-discussion and lab methods.

2241. Women's Studies. Cr. 2-4 (Max. 16).

Prereq: consent of instructor. Issues facing the contemporary American woman, such as search into identity, sexuality, career goals, the family, will be explored through speakers, mini labs and group interaction.

2560. Aging and Society. Cr. 2.

Prereq: consent of instructor. Introduction to a developmental view of adulthood and old age. Discussion of economic, social, political and ethical issues involved in accommodating increasing numbers of aged persons in our society.

3001. General Seminar in Humanities and Social Studies. Cr. 4.

Prereq: consent of instructor. Alienation, depersonalization and the crisis of identity, behavior control, the environment, the new industrial state, conformity, violence, aggression, conflict resolution, and man in the future.

3212. Interdisciplinary Social Sciences: Ethnic Studies II. Cr. 4.

An in-depth study of one of the areas covered in Humanistic and Social Studies 3711. Subject to be developed by instructor and student.

3242. Urban Humanities: Folk, Mass, Classical Cultures II. Cr. 4.

An in-depth study of one of the areas covered in Humanistic and Social Studies 3541. Subject to be developed by instructor and student.

3262. Urban Studies: Social Issues and Politics II. Cr. 4.

An in-depth study of one of the areas covered in Humanistic and Social Studies 3461.

3266. Urban Studies: Metropolitanism II. Cr. 4.

Coreq: HSS 3465 recommended. A study of the development of metropolitan regions as relevant social units in twentieth century America. How the rise of a new social unit relates to existing decision-making structures and existing systems of product and service delivery. Seminar.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

3272. Urban Humanities: Imaginary Arts II. Cr. 4.
Coreq: HSS 3571 and 4473 recommended. In-depth study in one of the areas covered in Humanities and Social Sciences 3571. Seminar.

3413. Interdisciplinary Social Sciences: Ethnic Studies III. Cr. 4.
Current issues, problems, theoretical discussions, and policy debates in the area of ethnicity.

3443. Urban Humanities: Folk, Mass, Classical Cultures III. Cr. 4.
Current issues, problems, discussions, and policy debates about the direction of the humanities and culture.

3461. Urban Studies: Social Issues and Politics I. Cr. 4.
Current issues, problems, theoretical discussions, and policy debates related to urban life in today's America; particular emphasis on Detroit.

3465. Urban Studies: Metropolitanism I. Cr. 4.
Coreq: HSS 3266 recommended. Current issues, problems, theoretical discussions, and policy debates related to urban group life in today's American metropolitan regions, with a particular emphasis on Detroit.

3541. Urban Humanities: Folk, Mass, Classical Cultures I. Cr. 4.
Lectures, demonstrations, and performances of folk, mass, and classical cultures with pre- and post-lecture discussions.

3571. Urban Humanities: Imaginary Arts I. Cr. 4.
Coreq: HSS 3272 and 4473 recommended. Introduction and overview of literature, poetry, design, architecture, painting, sculpture, urban planning.

3711. Interdisciplinary Social Sciences: Ethnic Studies I. Cr. 4.
The peoples and cultures that make up Detroit; an overview of social science disciplines dealing with ethnicity; case studies of different communities, groups, institutions, and issues related to group life and contact between different groups and institutions.

3901. Independent Theme — Area Studies: American. Cr. 4 (Max. 12).
Prereq: junior standing or consent of instructor. Interdisciplinary study of a major theme of American culture.

3902. Independent Theme — Area Studies: Britain and the Commonwealth. Cr. 4 (Max. 12).
Prereq: junior standing or consent of instructor. Interdisciplinary study of major theme of British culture.

3903. Independent Theme — Area Studies: European. Cr. 4 (Max. 12).
Prereq: junior standing or consent of instructor. Interdisciplinary study of a major theme of European culture.

4232. Interdisciplinary Social Sciences: Conflict Studies II. Cr. 4.
Coreq: HSS 4433, 4731 recommended. In-depth study of one of the areas being studied in Humanities and Social Sciences 4731.

4433. Interdisciplinary Social Sciences: Conflict Studies III. Cr. 4.
Coreq: HSS 4232, 4731 recommended. Current issues, problems, theoretical discussions and policy debates in the area of conflict and conflict resolution.

4473. Urban Humanities: Imaginary Arts III. Cr. 4.
Coreq: HSS 3272, 3571 recommended. Exposure to current issues,

problems, discussions and policy debates related to the imaginary arts.

4731. Interdisciplinary Social Sciences: Conflict Studies I. Cr. 4.
Coreq: HSS 4232, 4433 recommended. International and domestic conflict and conflict resolution. International, regional, communal, group and interpersonal conflicts analyzed. Various social sciences, case studies. Overview of theory, method, data, issues.

Vocational and Technical Studies (VTS)

2551. Introduction to Careers in the Criminal Justice Field. Cr. 4.
Prereq: HSS 1502 or basic college English or equiv. Orientation to fields of service in criminal justice systems and related institutions, survey of manpower needs, prerequisites and projections through 1980.

2552. Juvenile Delinquency, the Juvenile Court and the Law. Cr. 4.
Prereq: basic college English and introduction to social science or equiv; consent of counselor. Combined lecture and field experience in juvenile court setting regarding major problems, issues and prerequisites of sound juvenile justice process for court and agency-related personnel and others interested in future careers in this field.

2553. Exploration of Role and Methods of Counseling in the Juvenile Justice System. Cr. 6.
Prereq: basic college English and completion of introduction to social sciences. A field study practicum. Counseling intervention with pre-delinquent and delinquent youth; and social-legal ramifications of counseling role in juvenile justice system.

2870. Paraprofessional Practicum. Cr. 2-4 (Max. 16).
Prereq: one year's full-time experience as a paraprofessional; concurrent enrollment in a college-level course. Students work thirty hours per week in a public school, business, industry or social service agency under professional guidance.

3551. Interaction and Communication in the Court System. Cr. 2.
Interpersonal relationships, the individual in the court system, labor relations and court grievance procedure; and communication, perception, and feedback in the court system.

3552. Legal Rights and Responsibilities of the Average Citizen. Cr. 2.
Survey of increasing volume of law affecting consumer or average citizen.

3553. The Judicial System. Cr. 2.
General survey of theory, assumption and structure of American judicial system with special emphasis on Michigan.

3554. Administration Management for Personnel in Law Enforcement Agencies. Cr. 2.
Prereq: consent of instructor. Short course in management principles and techniques, specifically relating to functions of staff in law enforcement agencies in southeastern Michigan.

3571. Psychology of Living Successfully. Cr. 3.
Handling of troublesome mental states; fear of being misunderstood, overcoming undesirable habits; stage fright; fear of failure; business pressure; signs of mental stress and prevention.

3754. Social Planning Approaches to the Problem of Crime and Delinquency. Cr. 4.

Prereq: introductory social sciences and basic college English. The extent of crime and delinquency and the general problem of mobilizing systematic response; analysis of needed policy changes and possible "community systems" that may have impact on alleviation of some aspects of problems.

4551. Procedure and Evidence. Cr. 2.

Prereq: consent of instructor. Updating laws of procedure and evidence as these affect contemporary criminal justice systems in Michigan and the United States.

4552. Fiscal Administration for Court Employees. Cr. 2.

Working knowledge of court and budgeting procedures, accounting principles, cost, fiscal forms and procedures, and the auditing and reporting processes in the court.

5551. Management Practices and Techniques in the Court System. Cr. 2.

Prereq: VTS 4552. Traditional and popular principles of organization as they apply to the court system methods, financial management personnel, community-related and specific job function.

5552. Analysis of Individual Court Structures Within Michigan Court Systems. Cr. 2.

Prereq: consent of instructor. A series of weekly discussions on individual courts—circuit, recorder's, probate—to focus on problems peculiar to each court.



School of Medicine



School of Medicine Calendar

Year I

Registration Tuesday, September 3 -
Friday, September 6, 1974
Classes Begin Monday, September 9
Christmas Recess Friday, December 20, 1974 -
Wednesday, January 1, 1975
Spring Recess Sunday, March 30 - Sunday, April 6
Final Comprehensive
Examination Wednesday-Thursday, June 5-6
Classes End Thursday, June 6

Year II

Registration... Monday, August 26 - Friday, August 30, 1974
Classes Begin Tuesday, September 3
Christmas Recess* Friday, December 20, 1974 -
Wednesday, January 1, 1975
Spring Recess* Sunday, March 30 - Sunday, April 6
Final Comprehensive
Examination* Thursday-Friday, May 29-30
Classes End* Friday, May 30

Year III

Registration Monday, July 15 - Friday, July 19, 1974
Classes Begin Monday, July 22
Rotation I Monday, July 22 - Saturday, October 5
Rotation II... Monday, October 7 - Saturday, December 21
Rotation III Thursday, January 2 -
Saturday, March 22, 1975
Rotation IV..... Monday, March 24 - Saturday, June 7
Christmas Recess Monday, December 23, 1974 -
Wednesday, January 1, 1975
Classes End Saturday, June 7

Year IV

Registration..... Monday, July 1 - Friday, July 5, 1974
(Office closed Thursday, July 4th)
Classes Begin Monday, July 8
Elective Period I..... Monday, July 8 - Friday, August 2
Elective Period II... Monday, August 5 - Friday, August 30
Elective Period III..... Monday, Sept. 3 - Friday, Sept. 27
Elective Period IV..... Monday, Sept. 30 - Friday, Oct. 25
Elective Period V..... Monday, Oct. 28 - Friday, Nov. 22
Elective Period VI..... Monday, Nov. 25 - Friday, Dec. 20
Elective Period VII... Monday, Jan. 6 - Friday, Jan. 31, 1975
Elective Period VIII..... Monday, Feb. 3 - Friday, Feb. 28
Elective Period IX... Monday, March 3 - Friday, March 28
Elective Period X... Monday, March 31 - Friday, April 25
Elective Period XI... Monday, April 28 - Friday, May 23
Christmas Recess Saturday, December 21, 1974 -
Sunday, January 5, 1975
Classes End Friday, May 23
Commencement* Monday, May 26

* The dates given are tentative.

ACADEMIC REGULATIONS

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the School of Medicine.

ADMISSION

The School of Medicine currently accepts 256 students for its entering class. At least eighty percent of these places are given to residents of the State of Michigan. The students are selected from a large number of applicants. Special encouragement is given to qualified students from minority groups and students who bring diversified interests and abilities to the medical profession. Students over thirty years of age are generally discouraged from applying. Foreign students will not be considered unless they completed at least the last two years of their undergraduate training at a United States college or university. Every effort is made to choose those students who possess the characteristics which will enable them to work well with the faculty and who will be most apt to succeed in completing the work of medical school. Emphasis is placed on selecting a student body of potential excellence.

Academic Requirements for Admission

Although the Wayne State University School of Medicine prefers that applicants for admission have earned a bachelor's degree, it will occasionally consider students of unusual maturity and academic attainment who have completed three years of college.

The specific requirements for entrance are: general physics with laboratory, one year; inorganic and organic chemistry with laboratory, one year each; general biology or zoology with laboratory, twelve semester or eighteen quarter credits. A course in genetics must be taken as part of the biology sequence, and it is advisable that some material on embryology also be included in the biology sequence. One year of English is also required. The School will accept credits earned by special examination in lieu of these courses if the credits are clearly indicated on the undergraduate college transcript as having been accepted by the college toward fulfillment of requirements for the bachelor's degree. The remaining credits must be filled by electives, and the student is urged to select those subjects which will contribute substantially to a broad cultural background. Subjects taken during the course of study in other professional fields may not be substituted for the required premedical courses or any course in the prescribed medical curriculum. Applicants from professional schools must have completed ninety semester credits in liberal arts courses.

Final grades below C are not acceptable in courses required for entrance to the School of Medicine. Residents are usually required to have honor point averages of B or better; non-residents, B-plus or better.

It is to be noted that when students are accepted before completion of their premedical requirements, they must maintain a satisfactory scholastic average in their continued premedical work to warrant enrollment in the School of Medicine.

The Medical College Admission Test is required of all applicants for admission to the first year class. Students seeking admission to the freshman class of 1975 should take their Medical College Admission Test no later than September 1974. Scores of 530 or better are usually expected from residents; scores of 600 or better from non-residents. Interviews are held with applicants who appear to warrant further consideration after a preliminary review of their application credentials.

Admission to the First-Year Class

The School of Medicine adheres to the acceptance procedures of the Association of American Medical Colleges, including the "Early Decision Plan." Admission procedures of this School are:

1. No place in the first-year class shall be offered to an applicant more than one year before the actual start of instruction for that class.
2. Following the receipt of an offer of a place in the first-year class, a student shall be allowed two weeks in which to make a written reply.
3. Payment of a \$50.00 deposit is required upon acceptance by the student of a place in the first-year class. The deposit will be credited toward the initial tuition payment.
4. The acceptance deposit will be refunded without question upon request prior to March 1. After that date, it is non-refundable.
5. No student who has at any time been requested to withdraw for any reason from a medical school in which he has been registered will be accepted by this School of Medicine. Students who have been dropped for poor scholarship by the School of Medicine may not expect favorable consideration for readmission.
6. Any applicant accepted by the School of Medicine who does not complete enrollment must apply for readmission and meet all requirements in force at the time of such new application.

Admission with Advanced Standing

Students from approved American medical and osteopathic schools, and American students enrolled in foreign medical schools, are admitted with advanced standing to the second and third years only. Application for advanced standing should be made not later than April 1.

The following requirements must be met:

1. An applicant must have matriculated as a student in an approved medical or osteopathic school for a period of

time equal to that spent by the class in which he seeks entrance and must have completed courses equivalent to those required of that class.

2. He must file a completed application form and must present official transcripts from each school attended showing that he meets in full the entrance requirement for admission to this School.
3. He must be a student in good standing at the medical or osteopathic school from which he is withdrawing. A letter of support from the dean of that school is required.
4. He must take such examinations in the courses for which he seeks credit as may be required by the faculty of the School of Medicine.

REQUIRED PHYSICAL EXAMINATIONS

Each student must present proof of a physical examination prior to registration for the freshman year. Students are also required to present themselves for vaccination and other types of immunization as directed.

STUDENT HEALTH SERVICE

A Health Service, established at Grace Hospital for medical students, is in operation on an organized basis throughout the school year. In addition, Wayne State University maintains a Student Health Service for the treatment of illnesses not requiring extensive therapy, and for the general supervision of problems of student health. All students at the University are eligible for consultations with members of the Health Service at any time concerning problems of any nature.

FEES

All fees are payable in advance. Listed below are the fees in effect as of the date of this bulletin. They are subject to change at any time without notice by action of the Board of Governors.

UNDERGRADUATE FEES — REGULAR PROGRAM

	<i>Resident</i>	<i>Nonresident</i>
Annual Fee	\$1295.00	\$2650.00

An initial tuition payment of \$323.75 for residents and \$662.50 for nonresidents must be made at the time of registration. The balance is to be paid in seven monthly installments of \$138.75 for residents, six monthly payments of \$284 and one of \$283.50 for nonresidents.

A non-refundable late registration fee of \$10.00 is charged for any registration after the close of the regular registration period; the fee is \$25.00 for registrations more than fourteen days late.

CANCELLATION OF REGISTRATION AND REFUNDS

If a student finds it necessary to withdraw from the University he should notify the Office of Student Affairs, Wayne State University School of Medicine, in writing. If notice of 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

Books and Supplies — The cost is approximately \$200 per year. Books are available in bookstores near the School of Medicine.

Equipment — The School of Medicine provides microscopes for all entering freshmen and sophomore students. A rental fee of \$75 a year is charged. Each student must provide himself with dissecting instruments.

GRADUATE FEES

Students in the graduate programs offered by the School of Medicine pay regular graduate fees. See the General Information section of this bulletin, p. 6.

SCHOLARSHIP

The grading system is: H (honors), S (satisfactory), U (unsatisfactory). The minimum passing grade is S. During the first and second years, unit studies are examined individually and also comprehensively at the conclusion of each year. In order to qualify for promotion to the next class, a student must earn at least an S on the final comprehensive examinations and have shown proficiency in all unit studies. If a student fails a comprehensive examination, the year committee will review the accumulated unit examinations. The unit examinations and the comprehensive examination are mandatory. During the third and fourth years, a student must earn at least an S in all courses and rotations in order to be considered for promotion or graduation and must pass a patient management problem examination given at the end of Year III. During Year IV a grade of S or better must be earned in all courses elected by the student.

PROMOTIONS

Primary evaluation of individual students is the responsibility of: (1) The Year Committee for Years I and II; (2) The Department and Committee or Unit Heads for Years III and IV.

* \$50.00 is withheld only if the student withdraws from all courses.

Students are evaluated promptly following the comprehensive examinations in Years I and II and at the end of each rotation in Years III and IV, and recommendations are forwarded to the Promotions Review Committee through the Associate Dean of Student Affairs. Such recommendations may include re-examination, repetition of an entire year, interruption or suspension of a student's program, or dismissal. Failure of a major course in Years III and IV may be considered grounds for a recommendation of dismissal. The Promotions Review Committee is chaired by the Dean or his designate and consists of twelve members, four nominated from the faculty by the President of the Faculty Senate with the advice and consent of the Executive Committee, four nominated from the Council of Departmental Chairmen, by the President of that council with its advice and consent, four selected by and from the Student Body. Faculty members serve three-year terms. Student members serve for one year and have full discussion privileges, but not formal voting rights. The Associate Dean of Student Affairs serves as secretary of the Promotions Review Committee.

At appropriate intervals, the Promotions Review Committee meets to review the recommendations of the primary evaluators. The prime function of this review is to ascertain that the rules of the School and the rights of the individuals involved have been fairly met. Decisions are transmitted for the Committee by its secretary, the Associate Dean for Student Affairs. Students are advised of their right to appeal such decisions by direct petition to the Promotions Review Committee. In the event of such an appeal, the Committee shall gather evidence and hear witnesses. The student involved has the right to be heard by the Committee and may call a reasonable number of witnesses to testify on his behalf. The Promotions Review Committee is the final decision-making body with regard to the promotion process and has the prerogative of determining a student's desirability of character and suitability for the study and practice of medicine.

REQUIREMENTS FOR GRADUATION

A student regularly registered in the School of Medicine may receive the degree Doctor of Medicine upon the fulfillment of the following requirements:

1. He must be at least 21 years of age and must exhibit good moral character.
2. He must have satisfactorily completed all the academic requirements established by the School.
3. He must have paid all his fees in full.

UNDERGRADUATE CURRICULUM FOR MEDICINE

The primary objective of the four-year curriculum is to teach the fundamentals of medicine so as to graduate excellent physicians. The goals for the undergraduate program at the Wayne State University School of Medicine do not include training designed to encompass all of the medical specialties.

Instead, the medical faculty attempts to provide medical students with thorough understanding of the fundamentals of medicine, and to engender the concept that undergraduate medicine is preparation for a continuing graduate effort.

The recently revised undergraduate program in medicine consists of a core curriculum in cell biology, normal and abnormal organ system development, structure and function, an early correlation with clinical medicine, a coordinated clinical experience, expanded elective studies, and opportunity for early graduation.

Clinical correlation relates the basic sciences to patient care. The social and behavioral sciences are related to individual and community health problems with particular emphasis on preventive medicine and family care.

The first year includes anatomy, biochemistry, physiology, clinical conferences and behavioral sciences. Faculty from clinical departments lead weekly conferences to relate basic science knowledge to problems in patient care. Students spend one-half day a week in family and community care. In this program students work with families to gain an understanding of the interrelationship of social, economic and physical factors in health and illness.

Second year courses include pharmacology, pathology, microbiology, special topics in biochemistry and psychiatry. As in the first year, the clinical staff assists in the teaching. Clinical Medicine, bridging the basic sciences and the clinical years, provides an intensive course in interviewing techniques, medical histories and physical examinations. The individual attention given the student is made possible by the extensive utilization of a large clinical faculty and an abundance of inpatients in the affiliated hospitals.

The third year of the curriculum consists of medical sciences, including internal medicine, dermatology, neurology, and ophthalmology; surgical sciences, including general surgery, neurosurgery, urology, otolaryngology, and orthopedics; and maternal and child health consisting of obstetrics, gynecology, pediatrics, psychiatry, and community and family medicine.

The fourth year offers a broad program of structured electives. Individual students select their own program with the approval of their adviser and the Year IV Committee.

COOPERATIVE ELECTIVES EXCHANGE PROGRAM

The Deans of the four Michigan medical schools, acting as the Michigan Medical Schools Liaison Committee, have signed cooperative agreements allowing students full credit for courses taken as electives at any one of the participating medical schools: Wayne State University, University of Michigan, Michigan State University, and Michigan State University College of Osteopathic Medicine. The Deans intended the program "to make the best use of one another's resources to the greater advantage of the student and the Michigan community. By allowing medical students full academic credit for elective courses taken at any one of our respective medical schools, our students will be able to share productively in the learning and training opportunities of the entire State."

Under the Course Exchange Program the student continues to enroll and matriculate in the parent medical school. After obtaining approval to elect a course at a host school, the student pays only for living expenses while away from the parent institution.

Additional information can be obtained from Mrs. Sandra Driscoll, Recorder, Office of the Registrar.

FINANCIAL AID AND OTHER STUDENT INFORMATION

Students should refer to the School of Medicine Admissions Information brochure for more complete information regarding Medical School financial aids, student activities, and other pertinent subjects. The brochure can be obtained from the Admissions Office, Wayne State University School of Medicine, 540 E. Canfield, Detroit, Michigan 48201, telephone 313 - 577-1466.



Anatomy

Chairman: Clement A. Fox

Professors

Maurice H. Bernstein, Clement A. Fox, Morris Goodman, Stephen T. Kitai, Gabriel W. Lasker, Harry Maisel, David B. Meyer, Nicholas J. Mizeres, Ronan O'Rahilly

Associate Professors

Chitta R. Dutta, Jose Rafols, Richard A. Ramlau, Martha K. Rodin, Warren Schneider

Adjunct Associate Professors

Rene A. Archambault, Herbert J. Bloom

Assistant Professors

Jose Alcala, John A. Beal, Jr., Margaret H. Cooper, Jon DeFrance, Arthur Hamparian, James C. Hazlett, Jr., Linda D. Hazlett, Duncan T. Kennedy, Ivan J. LuQui, J. A. Mitchell, Roberta Pourcho, Edward G. Tracy, Phillip Waggoner, Allan Weinsieder, Jessie Wood, Henry Yoshihara

Instructor

Archie W. Bedell

Adjunct Instructor

Eugene I. Plous

Associates

Bent G. Boving, Professor of Gynecology and Obstetrics
John C. Plant, Assistant Professor in General Surgery

The courses of the Department of Anatomy present the human body from its initial differentiation, through development and growth, to adulthood. Functional aspects are included so as to clarify structural features. The basic aims of the department are to give the student an understanding of human anatomy as a discipline and to prepare him for his clinical work.

The department offers programs leading to the degrees of Master of Science and Doctor of Philosophy. These programs are intended to provide professional training for potential members of the academic disciplines of the anatomical sciences. They are also aimed at providing research training for individuals with professional clinical training.

Investigative areas represented within the department include gross, microscopic and developmental anatomy; cardiovascular physiology; neuroanatomy; histochemistry; human biology; reproductive biology; neurophysiology; cell and tissue ultrastructure; and immunobiology. Students in the graduate programs are expected to concentrate their studies in a particular area of interest, but they are also expected to acquire adequate training in all branches of the anatomical sciences.

Anesthesiology

Acting Chairman: Gerhard C. Endler

Professor

Gianfranco Dal Santo

Clinical Professor

Eli M. Brown

Associate Professors

Roy Aston, Shirley Austin, Sik W. Ting

Clinical Associate Professor

Bernard Sivak

Assistant Professors

Gerhard C. Endler, Marvin Jewell, Orlando S. Sison

Clinical Assistant Professors

Gaylord Alexander, Charles Berman, John Calwell, David Simpson, Milford Wenokur, Grant Withey

Instructor

James Harper

Clinical Instructors

Edward Bartholomew, Gerald Berlin, Peter Del Giudice, Rolf Donath, Thomas Morley, A. Michael Prus, Michael Rosenberg, Alfred Rubenstein, Barry Smiler, Sidney Soifer

Medical students are given the opportunity of an exposure to clinical anesthesiology and related fields. A one-month elective clerkship is offered for this purpose at the senior level. During this period, the student is taught the fundamentals of anesthesiology. Under supervision he conducts pre-anesthetic evaluations of patients, administers anesthesia and follows the post-anesthetic course. He also receives instruction in cardio-respiratory resuscitation, mechanical ventilation of the lungs, inhalation therapy and applied pulmonary physiology. Besides attending conferences and seminars conducted by the department, the student participates in laboratory exercises and demonstrations especially designed for him. The one-month exposure is conducted, as a rule, in the Detroit Medical Center and in other W.S.U. affiliated hospitals. However, upon individual approval from the coordinator, other institutions may be selected. Similarly, special electives or clinical electives lasting longer than a month also may be considered. Finally, opportunity is given to medical students to participate in research or in other projects with members of the anesthesiology staff. Lectures on subjects related to anesthesiology are given to medical students during courses preceding the senior year.

Audiology

Chairman: John H. Gaeth

Professor

John H. Gaeth

Associate Professors

Doris V. Allen, Edward J. Hardick, George E. Lynn

Assistant Professor

Robert H. Brey

Clinical Assistant Professors

Donald E. Lubbers, Robert L. Paul

Clinical Instructor

John I. Tschantz

The Department of Audiology functions in close cooperation with the Speech and Hearing Clinic, the Departments of Speech, Special Education and Vocational Rehabilitation, Psychology, Otolaryngology, and Physical Medicine and Rehabilitation. Graduate work leading to the master's and doctor's degrees is offered in cooperation with several of the above departments.

Audiology is concerned with the auditory aspects of communication. Thus the measurement of hearing, the interrelationships between the development of speech and language and hearing losses, the auditory symptoms of disease entities, and especially the habilitation and rehabilitation of individuals with hearing losses are the major interests of audiologists. The teaching program includes contact with the undergraduate students through the Department of Otolaryngology, a series of lectures to the senior medical students and the residents in otolaryngology and to the nurses and students through the Department of Physical Medicine and Rehabilitation. Some formal courses are designed for students preparing to teach the deaf and hard-of-hearing and for the speech and hearing clinician. Majors leading to the Master of Arts and the Doctor of Philosophy are available. The department offers wide clinical experience under the direct supervision of the faculty and staff in the Rehabilitation Institute, Detroit General Hospital, Children's Hospital, Veterans Administration Hospital, Henry Ford Hospital, Hutzel Hospital, Harper Hospital, private offices, and at the Lutheran School for the Deaf.

Biochemistry

Chairman: Ray K. Brown

Professors

Ray K. Brown, Adrian C. Kuyper, James M. Orten, Serge N. Vinogradov

Associate Professors

Samuel C. Brooks, Jr., Danica Dabich, Marilyn S. Doscher, A. Robert Goldfarb, Leonard I. Malkin, Robert A. Mitchell, Charles J. Parker, Jr., Demetrius Tsernoglou

Adjunct Associate Professor

Joseph D. Shore

Assistant Professors

Joseph C. Bagshaw, Alan S. Barrett, Lawrence Grossman, Richard A. Hudson, Paul H. Johnson, Robert M. Johnson, James J. Lightbody, Jr.

Instructors

Peter J. Kasvinsky, Gregory A. Petsko, Jurij Rozhin

Adjunct Instructor

Raymond E. Karcher

Associates

Sally A. Doehr, Instructor in Gynecology and Obstetrics

Charles E. Frohman, Associate Professor of Biochemistry in Psychiatry

Donald Oberleas, Assistant Professor of Internal Medicine

Vishwanath M. Sardesai, Associate Professor of General Surgery

Frank N. Syner, Associate Professor of Gynecology and Obstetrics

Clarence B. Vaughn, Clinical Assistant Professor of Oncology

Bennie Zak, Professor of Pathology

Jiri Zemlicka, Associate Professor of 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 laboratory familiarizes students with the experimental basis of certain biochemical concepts and techniques of significance in the biological sciences. The application of biochemistry to problems in clinical medicine is discussed.

GRADUATE PROGRAMS

The Department of Biochemistry offers programs leading to the Master of Science and Doctor of Philosophy degrees for students planning careers in teaching or research. The department attempts to pattern students' programs according to their interests and, at the same time, to provide them with a wide experience in the major areas of biochemistry. A combined M.D.-Ph.D. program with a major in biochemistry is also now available.

Admission—Students must have the equivalent of an undergraduate major in biology, chemistry, or medical technology,

or a science background in both chemistry and biology, or physics and mathematics.

Degree Requirements—Applicants for the master's degree must take forty-five credits, of which at least twelve will normally be in master's research and thesis. All master's degree students must take Biochemistry 0701-0704. Transfer students who have received credit for the equivalent of these courses taken at another institution must repeat the lecture portion of the courses to fulfill departmental requirements.

Applicants for the Doctor of Philosophy degree must complete 135 credits, including at least forty-five in research and dissertation, twelve to fifteen in a minor, and seventy-five to eighty credits distributed between the major and required cognate courses. To fulfill major requirements, students should take as many of the graduate level courses offered by the department as possible. The residence requirement of one year is normally met by the completion of ten quarter credits of work in each of three successive quarters. At least forty-five credits of graduate work must be taken at the University.

Each student must arrange his program in an area of minor concentration with a representative of the department in which he plans to minor and preferably with the representative on the doctoral committee. Concentrations in the following are acceptable as minors: organic chemistry, physical chemistry, physical-organic chemistry, microbiology, pharmacology, physiology, and biology.

Community Medicine

Acting Chairman: Theodore Goldberg

Professor

Theodore Goldberg

Adjunct Professors

Solomon J. Axelrod, Ruben Meyer

Associate Professor

Betty Rusnack

Adjunct Associate Professors

George E. Cartmill, John C. Donaher, Frederick W. Hyde, Jr., Alfred Plotkin, Julien Priver, Norbert Reinstein

Assistant Professors

Douglas E. Cox, Richard Henderson, Albert Kingman, Patricia L. Kuhns, Evelyn Rogers, Thomas Sullivan

Adjunct Associate Professors

Ethelene J. Crockett, Terence E. Carroll, Charles N. Inniss

The Department of Community Medicine is concerned with the study of the organization of health care in the United

States with particular reference to urban, disadvantaged populations. This program, for third year medical students, includes classroom seminars and field work involvement in private family physicians' offices, a prepaid group practice clinic, community clinics, and other major community health agencies. In class and in experienced 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 obligations of physicians. 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 of the University, such as the School of Social Work and the Colleges of Nursing and Pharmacy, allow for an interdisciplinary approach to study of the health care system.

In addition, the Community Medicine Department offers medical sociology and epidemiology and biostatistics to freshman and sophomore students.

The Department also provides elective opportunities for students who wish to concentrate for varying periods of time on aspects of community health or family medicine during their senior elective year.

Comparative Medicine

Chairman: A. G. Edward

Professor

A. G. Edward

Associate Professors

Nolen Connor (Pharmaco-Toxicology), Gunther Krause (Pathology), John Taylor

Assistant Professor

Kathleen Smiler

Clinical Assistant Professor

Reed Rings

Instructor

Alejandro Thiermann

The Department of Comparative Medicine functions closely with the Division of Laboratory Animal Resources. It is designed to bridge the gap between education and research in human and veterinary medicine. The department offers courses in animal experimentation and surgery to graduate students in the biomedical sciences.

Dermatology

Chairman: Donald J. Birmingham

Professors

Donald J. Birmingham, Hermann K. B. Pinkus

Clinical Professor

Amir H. Mehregan

Associate Professors

Isadore Botvinick, Aurel P. Lupulescu, Earl J. Rudner

Clinical Associate Professors

Lee Carrick, Charles J. Courville, Richard J. Ferrara, John N. Grekin, Louis S. Leland, Coleman Mopper, Harold Plotnick, Robert J. Schoenfeld, Oscar Schwartz, Benjamin Schwimmer, Andrew Segal, Renato G. Staricco, Harold E. Usndek, Rudolf E. Wilhelm

Assistant Professors

Thomas A. Chapel, L. Boyd Savoy

Clinical Assistant Professors

Jules Altman, J. David Ausum, Myron Barlow, Neldagae Chisa, Alan D. Cohen, Ralph J. Coskey, Robert P. Fosnaugh, Stanley Greenberg, John R. King, Marvin D. Siegel, Richard H. Smith, Julius Stone, Jay Victor

Clinical Instructors

Martin L. Abbrecht, Henry G. Bryan, Cynthia Chow, Carl J. Cohen, Richard F. Elton, Martin Hart, Robert P. Heidelberg, Marvin E. Klein, Sanford Kornwise, Bruce L. Krieger, Lawrence Krugel, Antonina Miller, Constantin Predeteanu, Daisy P. Ramos, James D. Stroud, Antoinette Tanay

Associate

Charles D. Jeffries, Professor of Immunology and Microbiology

The primary aim of the Department of Dermatology 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

Director: Alegro J. Godley

Associate Director: Dwight M. Schroeder

Associate Professors

Alegro J. Godley, Dwight M. Schroeder

Assistant Professors

Esly S. Caldwell III, Sam I. Lerman

Adjunct Instructors

John M. Battle, Camille Harize, Cecelia F. Hisson, Solomon Leland, George Mogill, Louis Zako

The Division of Family Medicine provides training and teaching in the specialty of family practice. The division brings an interdisciplinary approach to the delivery of comprehensive, continuous, coordinated and personalized care. The student will learn to view the patient in the context of the family and environment and the physician as a member and coordinator of the health care team. The specialty of family practice requires the ability to handle a wide range of medical problems, an understanding of one's own competence, and skill in utilizing community resources.

In the freshman year the division offers freshman students lectures and seminars to introduce the student to the concepts of family medicine. Junior students participate in a preceptorship program in physicians' offices throughout the State of Michigan. The department also offers the preceptorship program as an elective in the senior year.

General Surgery

Chairman: Alexander J. Walt

Professors

Augustin Arbulu, Adrian Kantrowitz, Irwin K. Rosenberg, Jerry C. Rosenberg, Alexander J. Walt, Robert F. Wilson

Clinical Professors

Clifford D. Benson, Eugene A. Osius, Joseph L. Posch, Harry C. Saltzstein (Emeritus)

Associate Professors

Lucy Brand, Jack Hertzler, Kamil Imamoglu, Ronald L. Krome, L. Phillippe LeBlanc, Charles E. Lucas, Warren O. Nickel, Vishwanath M. Sardesai, Yvan J. Silva, Zwi Steiger, Arthur Weaver

Clinical Associate Professors

Gaylord S. Bates, Ernest M. Berkas, John Reid Brown, Paul J. Connolly, Jay C. Day, Forest D. Dodrill, C. Jackson France, Prescott Jordan, Jr., William A. Lange, Alfred M. Large, Robert D. Larsen, Norman D. Nigro, Rodman E. Taber, Henry J. Vandenberg, Jr., George L. Walker, Gerald S. Wilson

Assistant Professors

Graeme C. Baker, J. Howard Binns, Charles L. Huang, John R. Kirkpatrick, Joseph S. Krakauer, Anna M. Ledgerwood, John C. Plant, Arvin I. Philippart III, Chaman L. Sarin, Gordon J. Shannon, Donald B. Smith, Choichi Sugawa, Norman W. Thoms, Paul Zamick

Clinical Assistant Professors

Robert D. Allaben, Federico A. Arcari, Eduardo Arciniegas, Joseph S. Bassett, Raymond J. Barrett, Conrad F. Bernys, Alexander Blain III, James B. Blodgett, George T. Bradley, Waldo L. Cain, William S. Carpenter, J. William Derr, Elmer P. Elias, Harold B. Fenech, Thomas M. Flake, Vincent J. Gallant, Charles J. Holt, Jr., John A. Ingold, Lyle F. Jacobson, Harold W. Jaffe, Patrick F. Jewell, Angelos A. Kambouris, Louis W. Kaufman, Young Song Kim, Floyd H. Lippa, James R. Lloyd, Robert J. Lucas, William G. McEvvitt, Don W. McLean, Elmer B. Miller, Moufid Mitri, Frank Monaco, Stewart E. Pursel, Paul Rizzo, Herbert J. Robb, Victor R. Scarano, Homer M. Smathers, Milton L. Sorock, Vollrad J. Von Berg, Gary J. Welsh, John F. Weiksnar, Scott W. Woods

Instructors

Bok S. Chung, Krishna K. Sawhney, A. Neal Wilson

Clinical Instructors

Elia D. Aboulafla, Thomas C. Arminski, Claude Benavides, Robert C. Birks, Chairat Chomchai, Bernard Eisenstein, Paul G. Firnschild, Thomas J. Greene, William H. Harranty, John M. Hartzell, David B. Hawtof, Ernest A. Hershey, George C. Hill, Franklin R. Jackson, Herbert S. Jacobson, Arnold M. Jones, Ali Kaf, Donald I. Kapetansky, Eric W. Lauter, Kim K. Lie, Hayward C. Maben, Roger F. McNeill, John N. Mehales, Larry R. Pelok, Frank W. Prust, Saul Sakwa, Ward M. Smathers, Andrew E. Stefani, Robert R. Threlkeld, Oscar C. Tumacder, Balak R. Verma, Leonard F. Van Raaphorst, Frederick Weissman

Research Associates

Robert L. Campbell, P. G. Parameswaran, T. Ravikant, D. V. Singh

Associate

Allen Silbergleit, Adjunct Assistant Professor of Physiology

The main objectives of the Department of General Surgery are to relate the principles of the basic sciences to clinical practice and to stress details of patient care in the light of modern physiological and pharmacological knowledge.

The accent is on the understanding of the deranged metabolic processes occasioned by surgical disease and trauma, the translation of these into recognizable symptoms and signs, and the rational correlation of therapy with these basic disturbances. The operation is taught as only one aspect of patient care and emphasis is placed on the relationship of the doctor to other personnel who form part of the health

team. Students are assigned certain patients for study and are encouraged to develop a sense of personal responsibility for their care. Necessary parallels to these goals are both awareness of and involvement in clinical investigation in the hospital. Students gain exposure to pediatric surgery at Children's Hospital of Michigan and a wide clinical experience at Detroit General, Veteran's Administration in Allen Park, and Harper Hospitals where they are an integral part of the various surgical services.

A unique experience is provided to each student by a two-and-one-half week rotation on the emergency division at Detroit General Hospital. This rotation enables the student to participate in the multi-discipline management of acutely ill and injured patients both in the emergency room and on the wards.

Students are encouraged to participate in experimental and clinical research programs with staff supervision during their senior elective periods and summer vacations. The program is designed to provide the student with the opportunity to develop career interests in general surgery at an early stage.

Gynecology and Obstetrics

Chairman: T. N. Evans

Professors

Bent G. Boving, T. N. Evans, E. S. E. Hafez, K. S. Moghissi, Alfred I. Sherman

Clinical Professors

C. Paul Hodgkinson, Aaron Rutledge

Associate Professors

Charles R. Boyce, Bernard Mandelbaum, J. Mott Rawlings, Frank N. Syner, John Y. Teshima

Clinical Associate Professor

E. Ralph Margulis

Assistant Professors

William B. Kirtland, Jr., Arthur G. Seski, Joan C. Stryker, Charles C. Vincent

Clinical Assistant Professors

Arthur W. Eckhous, David Feld, Milton H. Goldrath, Leonard P. Heath, Abraham A. Hodari, Morton R. Lazar, Harvey D. Lynn, Donald N. Morgan, Mario A. Petrini, Addison E. Prince, Lee B. Stevenson, Robert G. Swanson, Charles H. Wright

Instructors

Hassan Amirikia, Sally A. Doehr, Marilyn Poland, Herbert W. Thompson

Clinical Instructors

William B. Anderson, William G. Bentley, Allen Berlin, William M. Chavis, S. Leonard Cohn, Panfilo C. DiLoreto, Laurel S. Eno, Sami F. Guindi, Elaine M. Hacker, E. Rae Hudspeth, William H. Jevons, Cecil R. Jonas, James Labes, David I. Lipschutz, Donald D. Masse, Karl L. Miller, Philip S. Peven, James H. Robinson, Harold Rosen, Albert Rosenthal, Michael S. Salesin, Lorraine A. Sievers, Eugene A. Snider, Joseph Stern, Leonard B. Sudakin, John A. Tulloch, Robert G. Walkowiak, James N. Wardell, Irvin A. Wilner

Part-Time Faculty

Associate Professor

William S. Floyd

Instructors

Julius V. Combs, Eli M. Isaacs

Associates

John A. Churchill, Professor of Neurology
Danica Dabich, Associate Professor of Biochemistry
Louis Hoffman, Clinical Assistant Professor of Psychiatry
Robert B. Leach, Assistant Professor of Internal Medicine
Charles Lucas, Associate Professor of Internal Medicine
Lawrence P. Tourkow, Associate Professor of Psychiatry

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 four affiliated hospitals — Detroit General, Harper, Hutzel and Sinai. Seminars and research opportunities related to human reproduction, oncology, and gynecologic endocrinology are available during the clerkship and the senior elective period. An extensive research program in reproductive biology is in progress. This effort is multidisciplinary and also involves the Departments of Anatomy, Biochemistry and Microbiology. Summer student research fellowships are available at the C. S. Mott Center for Human Growth and Development where our laboratories are located. Three new subsidiary Specialty Boards in gynecology and obstetrics are: gynecologic oncology, fetal and maternal medicine, and gynecological endocrinology.

Immunology and Microbiology

Chairman: Noel R. Rose

Associate Chairman: Charles D. Jeffries

Professors

Richard S. Berk, Dominic L. DeGiusti, Charles D. Jeffries, Fred L. Rights, Noel R. Rose, Cyril S. Stulberg, Alton R. Taylor, Lawrence M. Weiner, Marvin A. Rich

Adjunct Professor

M. David Poulik

Associate Professors

Yi-chi M. Kong, Seymour Levine, Robert H. Swanborg

Assistant Professors

Larry D. Bacon, William J. Brown, Byung-Kil Choe, Joseph D. Jollick, Lily A. Jones, V. Fay Righthand, Roy S. Sundick

Instructors

Lee Carrick, Jr., Ward D. Peterson

Associates

Flossie Cohen, Professor of Pediatrics
A. Martin Lerner, Professor of Internal Medicine
James J. Lightbody, Clinical Associate Professor of Internal Medicine

In its teaching programs, the Department of Immunology and Microbiology strives to give future physicians a broad understanding of infectious agents and their role in the disease processes, so that rapid laboratory diagnosis can be made and proper therapy instituted. Immune mechanisms and concepts are stressed so that a broad base of knowledge is developed. The aim is to provide a sufficient fundamental understanding of immunology and the various phases of microbiology so that graduates, as practicing physicians, can assimilate and use the contributions continually being made to this basic science discipline.

GRADUATE PROGRAMS

The department offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees in immunology and microbiology in the following specialized areas of study: medical bacteriology, virology, mycology, microbial physiology, microbial genetics, cellular immunology, tumor and transplantation immunology, and immunogenetics.

All questions concerning these programs should be directed to the Departmental Graduate Officer, Dr. Robert H. Swanborg.

Internal Medicine

Chairman: Arnold M. Weissler

Professors

Arnold Axelrod, Grosvenor Bissell, Michael Brennan, Muir Clapper, Joseph Hess, A. Martin Lerner, Benjamin M. Lewis, Robert Mack, Felix Madrid, Lawrence Power, Ananda Prasad, Herbert Ravin, Arnold Weissler

Clinical Professors

Abraham Becker, Nathan Brooks, Jack Kaufman, Dan Myers, Frank Perkin, Robert Schneck

Associate Professors

A. Robert Arnstein, Carter Bishop, Daniel Hollander, Franklin Hull, Samuel Jacobson, Don Jones, Charles Lucas, Richard McCaughey, Franklin McDonald, Charles McEwen, Edward Nedwicki, Thomas Petz, Pritpal Puri, Paul Ruble, Frederick Talmers, Liborio Tranchida, Milton Weed, Francis Wilson

Clinical Associate Professors

Walter Anderson, John Bielawski, Richard Connelly, C. Rupert Edwards, George Fisher, Sidney Friedlaender, Robert Hamburg, Homer Howes, Benjamin Juliar, Henry Kaine, James J. Lightbody, Hyman Mellen, Marjorie Peebles-Meyers, Yoshikazu Morita, William Reveno, Clarence Rupe, Nelson Taylor, Clyde Wu

Assistant Professors

Ali Abbasi, Nandalal Bagchi, Changiz Bidari, Ralph Carmel, Margo P. Cohen, Ralph Cushing, Gopal Das, Burleigh DeTar, Sunilendu Ganguly, Subhas Gulati, H. Richard Henderson, T.I.M.Z. Hossain, Samuel Indenbaum, G. Krishna Kumar, Carl Lauter, Robert B. Leach, Mila Martinez-Mojares, William McDonald, Donald Oberleas, Chris Palacas, Milagros Reyes, Erwin Robin, Melvyn Rubenfire, Sheldon Stoffer, John Stone, Rachel Turner, Kenneth Weinberger

Clinical Assistant Professors

Sidney Adler, Donald Albert, Leonard Alexander, Richard Anslow, Howard Appelman, Harry Balberor, Matthew Balcerski, Thomas Batchelor, Max Beitman, Kenneth Bergsman, Robert Birk, Robert Black, Herbert Cantor, Douglas Chandler, Raymond Christensen, Alberto Cohen, Ralph Cooper, Walter DiGiulio, Robert Douglass, Jr., Howard Dworkin, Meryl Fenton, Vance Fentress, Michael Freeman, Alexander Friedlaender, Emanuel Frisch, Gilbert Galens, Eugene Gelzayd, Robert Gerisch, William Gibson, Donovan Givens, Herbert Goldstein, John Graham, Jr., Abraham Grant, Henry Green, Julius Greenberg, Robert Griffin, James Hallen, Frederic Henderson, Hugh Henderson, Raymond Henkin, Glenn Hiller, George Kadian, Sheldon Kantor, Sherman Kay, Alfred Klein, Herman Klein, Howard Klein, Sander Klein, Walter Kujawski, Lyla Leipzig, Herbert Levin, Stanley Levy, Stephen Levy, Berton London, Gerald Loomus, Ivan Mader, Robert Malone, Walter Martin, Paul

Mattman, Thomas McBryan, William McIntyre, George McKeever, Donald Meier, Sidney Miller, William Morse, John Moynihan, David Nolan, Aline Orten, Lloyd Paul, Louis Pollens, Nicolas Radoiu, Paul Reagan, Joseph Rinaldo, Arthur Rose, Herbert Rosenbaum, Everett Rottenberg, Milton Rueger, Richard Ruel, Hershel Sandberg, John Schneider, Howard Shapiro, Jack Shartsis, Clayton Shors, Richard Sills, Manuel Sklar, Alex Soller, Thomas Stock, Marcus Sugarman, Edward Tallant, Myer Teitelbaum, George Thosteson, Donald Visscher, Ignatios Voudoukis, Floyd Walter, Irving Warren, Richard Wetzel, Freeman Wilner, Andrew Wilson, Jose Yanez, Irving Young, Edward Zaleski, Walter Zimmerman

Instructors

K. M. Anadaiah, E. Martin Barbour, Yingsan Chen, Maria Fernandez, Gregorio Ferrer, Marcia Fowler, Ishan Haq, Channakeshana Indira, Kyung Soo Kim, Vital Kinhal, Carl Liapcheff, Gholamali Malekheadayat, Jesus Ortega, Andre Pugel, Lazurus Reed, Ismael Romero, H. V. Satyanarayana, Angiya Satynathan, Andrew Smith

Clinical Instructors

R. Roderic Abbott, Seymour Adelson, Elsa Alcantara, Robert Barron, Sidney Baskin, Gilbert Berman, Oscar Bigman, Thomas Billingslea, James Brown, John Bryan, John Burger, Joseph Cahalan, Robert Cubberley, William Curtiss, Charles Ebner, Eldon Erickson, Reginald Ernst, Michael Federman, Herbert Friedman, James Gallagher, Richard Gause, James Gilreath, Harold Ginsberg, Howard Goldberg, Michael Grishkoff, Benjamin Gutow, Meyer Gutterman, Harcourt Harris, Allison Henderson, Herbert Hiller, Archie Hulick, M. Colton Hutchins, David Itkin, David Jacobs, James Kennary, Jr., Edwin Kerr, Karl Kessel, Joyce Kingsley, Jr., Arthur Klass, Arsenia Koh-Guevarra, Mervyn Lakin, John Lesesne, Murray Levin, Nathan Levitt, Leonard Linkner, Walter Livingston, Jr., Reuben Lopatin, Richard Lubera, Leslie Mandel, French McCain, Lawrence McNichol, Leonard Melander, Jr., John Moses, Hector Mulero, Ian Murray, Warren Nesbit, Katheryn O'Connor, Sidney Prystowsky, Bernard Rapoport, William Reidt, George Ritter, Herbert Rossin, Mitchell Salhaney, Michel Salib, Sidney Schuchter, Stephen Senecoff, Herschel Shulman, William Sills, Allen Soble, Freddy Sosa, Albert Steinbach, Eugene Steinberger, Milton Steinhardt, Gerald Stronski, Dick Tarpinian, Theodore Todoroff, William Weaver, David Wilson, David Young, Eldred Zobl

The major objective of the educational program in internal medicine is to indoctrinate students in the fundamental principles of clinical diagnosis and management. During the early medical school years emphasis is placed on the application of knowledge gained in the basic science courses to the biologic disorders which accompany human disease. In the freshman year, the student meets the Department of Internal Medicine through his 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 team. In the junior year the student gains clinical experience

through assignment to the wards of the Wayne State University teaching hospitals. This insures exposure to several members of the faculty and to a wide spectrum of medical problems. During the senior year, the student is offered a variety of elective courses for study in general internal medicine or its subspecialties and may choose to pursue laboratory investigative programs under the tutelage of members of the faculty. In addition to formal course work, the student may elect more intensive study as a student-fellow in either clinical or laboratory medicine during the summer recess.

Neurology

Chairman: John Gilroy

Professors

Raymond B. Bauer, John A. Churchill, John Gilroy, Foster K. Redding, Ernst A. Rodin

Associate Professors

John T. McHenry, Melvin L. Schwartz

Assistant Professors

D. Ram Ayyar, James E. Gotham, Anand Prakash

Clinical Assistant Professors

Joseph H. Chandler, J. Dana Darnley, Abe S. Goldstein, Reginald W. F. Harnett, Jasper McLaurin, Carlos M. Perez-Borja, Louis E. Rentz, Sheila Sheehan

Instructors

Lourdes V. Andaya, John D. Karakitsos, M. Zafar Mahmud, Mithlesh Prakash, Choon Soo Rim

Clinical Instructors

Jacob Danial, John A. Hughes, Winston B. Jackson, Demetrios L. Kikas, David Lustig, Kathryn McMorrow, Michael A. Nigro, Norman Wechsler

Associates

Marion I. Barnhart, Professor of Physiology
Jacob L. Chason, Chairman and Professor of Pathology
Morris Goodman, Professor of Anatomy
George E. Lynn, Associate Professor of Audiology
Joseph N. Schaeffer, Chairman and Professor of
Physical Medicine and Rehabilitation
Ralph T. Walsh, Assistant Professor of Physiology
Harvey I. Wilner, Clinical Assistant Professor of Radiology

The Department of Neurology now participates in the teaching of medical students in all of the years of the medical curriculum. Clinical demonstrations of common neurological abnormalities are given to students as an integral part of the neurosciences curriculum in the first year. In the second year,

the neurology program has been expanded to take a major part in the neurosciences curriculum with both lectures and demonstrations on major neurological topics. During the third year, students rotate through the Neurology Units at either Harper Hospital or Detroit General Hospital for a period of two weeks. During this time, they receive bedside teaching on the clinical examination of patients, they are given a certain amount of responsibility in the presentation of cases to staff individually and in conference, and they are given every opportunity to learn the basics of clinical neurology. The fourth year program is entirely elective and programs for eight or twelve weeks are offered to interested students. Students who elect to serve on either of the two neurology units are given more responsibility in terms of patient care and in the evaluation and presentation of cases to the staff.

The Department of Neurology is now able to offer residencies to medical students graduating from the fourth year at Wayne State University or at other universities without an internship and the residency program has been modified to accommodate those recruited directly from medical school.

Research fellowships for medical students are available for students in third and fourth years. They are of two types: a short summer research program during which the student works on one of the two neurology units for a period of six to eight weeks. The second type of fellowship is usually given to students who show interest in research on a neurological topic and this is conducted during the student's spare time in his third and fourth year over the whole of the academic year. It can be continued into a summer research program. Interested students are encouraged to make application to the Department of Neurology for these fellowships.

Neurosurgery

Chairman: L. Murray Thomas

Professors

E. S. Gurdjian (Emeritus), L. Murray Thomas

Clinical Professors

H. Harvey Gass, Aage E. Nielsen

Associate Professors

William R. Darmody, Voigt R. Hodgson

Clinical Associate Professors

Philip J. Huber, Frederick R. Latimer

Assistant Professors

Gerald A. Moore, Warren G. Hardy

Clinical Assistant Professors

Donald C. Austin, Arthur B. Eisenbrey, Benjamin F. Haddad, David W. Lindner, John F. McGuire, Arthur Z. Ostrowski, Harold D. Portnoy, Gordon P. Scratch, Donald R. Simmons

Clinical Instructors

Paul D. Croissant, Arek L. Sarkissian

Associate

Harvey I. Wilner, Clinical Assistant Professor of Radiology

The Department of Neurosurgery has the goal of acquainting the undergraduate medical student with the problems, both diagnostic and therapeutic, in the field of neurosurgery. This is accomplished by close affiliation with and participation in the neurosciences core curriculum of the freshman and sophomore years. Lectures, conferences, and ward rounds are included in this teaching program. Third-year students are made aware of the problems best handled by neurosurgical techniques during their trauma and emergency surgery rotation. Fourth-year students seeking more information about neurosurgical techniques may avail themselves of elective programs in clinical neurosurgery and in experimental head injury. Detroit General Hospital is the primary teaching hospital for the undergraduate program in neurosurgery. A residency training program in neurosurgery of five years is conducted by the department and based at the following University affiliated hospitals: The Grace Hospital (Central Branch), Harper Hospital, Children's Hospital, and Detroit General Hospital. The research interests of the department are concentrated primarily in the mechanisms of and protection against head injury. The Gurdjian-Lissner Biomechanics Laboratory is a function of the Department of Neurosurgery.

Occupational and Environmental Health

Acting Chairman: William G. Fredrick

Professor

William G. Fredrick

Associate Professors

Harry L. Berke, George Hama, Andrew L. Reeves

Adjunct Associate Professors

Marion W. Jocz, Kenneth J. Olson, S. Daniel Steiner

Assistant Professor

Thomas F. Mooney, Jr.

Adjunct Assistant Professors

Duane L. Block, Martin L. Charles, Edwin DeJongh, William Jend, Jr., Louis W. Staudt, Douglas J. Wood.

Instructors

Edward J. Kerfoot, Neil D. Krivanek

Associates

Alexander H. Hirschfeld, Clinical Associate Professor of Psychiatry

Benjamin M. Lewis, Professor of Internal Medicine

Hermann K. B. Pinkus, Professor of Dermatology

Henry E. Puro, Associate Professor of Pathology

Robert H. Swanborg, Associate Professor of Immunology and Microbiology

Rudolph E. Wilhelm, Clinical Associate Professor of Dermatology

The Department of Occupational and Environmental Health is concerned with the training of physicians and members of the environmental sciences to understand and cope with those physical and chemical factors capable of inducing stress or damage to health in a complex industrial and urban environment. If occupational disease is to be effectively detected, managed, and controlled, critical insights must be made about new materials and processes, the expanding use of industrial substances, and the circumstances under which men work. The prevalence of specific disease entities, induced or aggravated by occupational situations, and the need for preventive measures to control disease within industry have fostered the development of occupational health as a specialty. Currently there are two specialty boards, one for industrial hygiene and the other for occupational medicine.

The major aims of the Department of Occupational and Environmental Health are to contribute, through research, training, and teaching, to the continued development and expansion of these interrelated scientific fields. Another aim is to give service to management and labor, in order to assure the maintenance of optimum health conditions for the working man.

RESEARCH PROGRAMS

The research program in the department focuses on the interrelationship between man and his occupational and non-occupational environments. Accordingly, active programs investigate the impact of certain toxic substances on various components of the body, including the cardiorespiratory, dermatologic, excretory, and neurologic. Psychiatry and psychology are other areas being integrated with the general field of occupational health.

Oncology

Chairman: Vainutis K. Vaitkevicius

Professors

Jerome P. Horwitz, David Kessel, William L. Simpson, Vainutis K. Vaitkevicius

Associate Professors

Muhyi Al-Sarraf, Melvin L. Reed, Jiri Zemlicka

Assistant Professors

Laurence Baker, Eulogio Caoili, Ronald Izbicki, Darlene Mood, Bohumil Samal, Amnuay Singhakowinta

Clinical Assistant Professors

John H. Burrows, Clarence B. Vaughn

Instructors

Ernesto Briones, Prem V. Khilanani, Paik Nyon Kim, Maria E. Sexon-Porte

Clinical Instructors

Guillermo Betanzos, Eudoro Coello, Jess U. Lim, Benjamin J. Wailes

With the increasing effectiveness of cancer chemotherapy, the School of Medicine is providing care to some 125 inpatients with advanced neoplastic disease. The Division of Oncology is responsible for the care of these patients who are primarily housed at Grace Hospital where it conducts research in natural history, and hormone- and chemotherapy of cancer. The members of the Division of Oncology participate in all teaching programs as they relate to cancer throughout the Medical School curriculum. Medical interns and residents as well as students rotate through this service (several elective programs are being offered). Four two-year fellowships in clinical oncology are filled with internists who are preparing for certification in the subspecialty of Medical Oncology by the American Board of Internal Medicine.

Ophthalmology

Chairman: Robert S. Jampel

Professors

Clifford V. Harding, Jr., Robert S. Jampel

Clinical Professors

Edmond L. Cooper, Windsor S. Davies, V. Everett Kinsey, Cecil W. Lepard, H. Saul Sugar

Associate Professors

Irene E. Loewenfeld, Michael A. Wainstock

Clinical Associate Professors

David Barsky, Maurice Croll, Robert J. Crossen, Paul L. Cusick, Conrad L. Giles, V. N. Reddy, Albert D. Ruedemann, Jr.

Assistant Professor

John W. Cowden

Clinical Assistant Professors

Hugh Beckman, Oscar A. Brown, Leland F. Carter, John P. Clune, James L. Frey, Jo D. Isaacson, Fritz Jardon, Leonard H. Lerner, Lester E. McCullough, Robert J. McDonald, Thomas R. McKenzie, Delbert P. Nachazel, Wesley G. Reid, Sheldon D. Stern, Lawrence L. Stocker, Thomas G. Varbedian, James E. Watson, Horace L. Weston

Instructors

Donald S. Beser, Osvaldo J. Caffa, Arlene E. Stearns, Norman Zucker

Clinical Instructors

Daniel R. Barr, Michael H. Bialik, Frederick W. Bryant, William M. Cutler, Jerome Davis, Jaap B. Delevie, Gomer P. Evans, Jr., Gordon R. A. Fishman, Ralph M. Fox, Thomas H. Galantowicz, Robert I. Gans, Quentin P. Hamilton, William E. Hersee, Tom G. E. Ing, Frederick J. Lepley, Joseph A. Lioui, Raymond R. Margherio, Frank R. Markey, James R. Marshall, Jr., Marion G. McCall, Morris J. Mintz, Frank J. Moran, Robert J. Netzel, James A. Olson, Anthony C. Porretta, William T. Sallee, Herbert D. Sherbin, Kirwin Stief, Sidney L. Stone, Floyd S. Tukel, Patrick Villani, Noel A. von Glahn, William A. Willoughby

The undergraduate program in ophthalmology consists of several hours of lecture with laboratory associated with the Department of Physiology. Several lecture hours are also given to the anatomy class. In the third year, five days are spent on the eye service under the supervision of the staff and residents.

Orthopedic Surgery

Chairman: Herbert E. Pedersen

Professor

Herbert E. Pedersen

Adjunct Professor

A. Jackson Day, Frederick J. Fischer

Adjunct Associate Professors

Maxwell B. Bardenstein, William H. Blodgett, Maurice E. Castle, James J. Horvath, Loyal W. Jodar, John M. Pandy, J. G. Reid, Richard D. Young

Assistant Professors

Bala S. Prasad, L. James Roy, James R. Ryan, Gino G. Saliccioli

Adjunct Assistant Professors

Milton M. Green, John Griz, Richard H. Hall, Eugene D. Horrell, H. Ross Hume, G. Richard Jones, Bernard Krakauer, Richard L. LaMont, William H. Salot, William E. Siebert

Instructors

Gheorghe Corondan, Walter L. Everett, Jr.

Clinical Instructors

John T. Beuker, William R. Fulgenzi, Michael J. Geoghegan, Wallace E. Johnson, Stuart A. Katz, Joseph J. LaHood, Robert S. Levine, John H. McCollough, Peter Palmer, George V. Pandy, Leonard M. Pickering, Carl E. Reichert, Jr., L. Carl Samberg, Daniel E. Schechter, Thomas J. Setter, Joseph Shurmur

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

Acting Chairman: Philip M. Binns

Professor

G. Jan Beekhuis

Clinical Professors

I. Jerome Hauser, Lyle G. Waggoner

Associate Professor

Philip M. Binns

Research Associate Professor

Jaime T. Benitez

Clinical Associate Professors

Ned I. Chalot, James E. Coyle, T. Manford McGee, Bruce Proctor

Assistant Professors

Montra M. Kanok, James McKenna, John C. Webster

Clinical Assistant Professors

Paul J. Dzul, Royal C. Hayden, Edward B. Harrington, James T. Mimura, Richard R. Royer, Miles Taylor, Martin B. Trotsky, George J. Viscomi, Dieter Wendling

Instructor

David M. Davis

Clinical Instructors

Paul W. Babcock, Donald L. Baltz, John A. Fushman, Walter M. Belenky, Michael S. Menge, William J. Rice, Wilfred A. Riddell, Michael E. Rollins

The undergraduate teaching program of the Department of Otolaryngology is designed to acquaint the student with all diseases treated by the modern otolaryngologist. Instruction is given in the methods of examining the ear, nose and throat in the outpatient department. Audiology is included so that the student may properly classify deafness in selecting the indicated therapy.

Head and neck, and plastic and reconstructive surgery as related to otolaryngology are included in the instruction period. Observation and, at times, assistance at surgical operations offer additional interest to students. The program of teaching stresses the correlation of ear, nose and throat to general medicine and surgery.

Pathology

Chairman: Jacob L. Chason

Professors

Jacob L. Chason, Edward R. Powsner, Barbara F. Rosenberg, Roger J. Thibert, Bennie Zak

Clinical Professors

Robert C. Horn, Jr., John R. McDonald, Herman K. B. Pinkus, John W. Rebuck

Associate Professors

Margarita Palutke, Henry E. Puro, Jeanne M. Riddle, Werner U. Spitz

Clinical Associate Professors

Norman H. Horwitz, James Humes, Sidney D. Kobernick, James W. Landers, John D. Langston, Herman J. Linn, Rosser L. Mainwaring, Julius Rutzky, Walter A. Stryker, Frederick W. Wertheimer

Assistant Professors

A. Joseph Brough, Carolyn Feldkamp, Barbara J. Jenkins, Glen A. Johnston, Song Hai Nam, Sharon M. Noonan, Waldemar Palutke, Nasr D. Schnuda, Lakshmi Sridhar

Clinical Assistant Professors

Eugene S. Baginski, Juan Belamaric, Earnest Booth, Jacob E. Briski, Saul Brown, Andrew R. W. Climie, Robert C. Dickenman, Thomas F. Dutcher, Emanuel Epstein, John F. Fennessey, Lawrence Gardner, Paul A. Goodman, Carl M. Hasegawa, Molly Tan Hayden, John B. Juncker, Thomas Knechtges, Edward T. Konno, John Lucas, Aaron Lupovitch, Gerald Mandell, Kenneth R. Meyer, John T. Piligian, Joseph

T. Powaser, Nikolai Rachmaninoff, Alexander N. Rota, Boris Silberberg, Alexander Ullman, Frank B. Walker, Richard K. Wesley, Richard M. Zirkin

Instructors

Myung Sook Pak, Teresa Pietruk

Clinical Instructors

A. Amir Al Saadi, Billy Ben Baumann, Donald Brock, Barbara A. DeFever, Alina M. Domanowski, George A. Fischer, Marie N. Fly, Leighton Nyuk Kong, Herbert Krickstein, Noel S. Lawson, John H. Libcke, Roderick P. MacDonald, Theodore Reyman, James A. Rising, William C. Swatek, Augustine Torres, Robert F. Wylin

Associates

A. Martin Lerner, Professor of Internal Medicine
Fred L. Rights, Director and Professor of Allied Health
Wolf W. Zuelzer, Professor of Pediatrics

Research Associate

Fa-ezeh Behjat

The Department of Pathology offers courses during the second, third, and fourth years of medical school. In the second year, a full year's course is given in anatomic pathology in which the student is taught the basic abnormalities as they present themselves in gross and microscopic lesions. No attempt is made to present the finer details of gross and microscopic pathology at this level. The students are encouraged to obtain the general principles of pathologic processes, in order that they may correlate these lessons with their work during the clinical years. The general principals of clinical pathology (laboratory medicine) are also taught during the second year. This section of pathology has been completely integrated with anatomic pathology in order that structure and function can be properly considered as a single unit. During this work, emphasis is placed on hematology and blood banking. Specific details of surgical pathology are given to the third-year students during their surgical clerkship. During the fourth year, students wishing to obtain broader concepts of anatomic and clinical pathology are encouraged to engage in studies with various members of the department.

GRADUATE PROGRAMS

The Department of Pathology offers a program leading to the degree of Master of Science.

Admission—Applicants for graduate work in pathology must be graduates of an approved school of medicine and have completed an approved internship. They must also be accepted for residency in the Wayne State University Affiliated Hospitals Residency Program in Pathology.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements—Forty-five credits are required. At least half of the course work and the thesis must be in the major. Students are expected to take six credits in minor or

cognate fields. A course in statistics or medical statistics is recommended. A final oral examination and thesis are required of all students.

Pediatrics

Chairman: Sanford M. Cohen

Professors

Flossie Cohen, Sanford M. Cohen, Adnan Dajani, Edward W. Green, Anthony C. Nolke, Charles F. Whitten, Paul V. Woolley, Jr., Wolf W. Zuelzer

Adjunct Professors

Samuel J. Levin, M. D. Poulik

Associate Professors

Robert H. Gregg, William Gronemeyer, Louis E. Heideman, Marilyn Heins, Ingeborg Krieger, Leslie Pensler

Adjunct Associate Professors

Samuel S. Bernstein, Ralph Cash, Arthur Thompson

Assistant Professors

Elliott B. Alpern, Regine Aronow, Harold Chen, David Faigenbaum, Zia Farooki, Larry E. Fleischmann, Zwi H. Hart, Charles G. Jennings, Joseph Kaplan, Nansen Liu, Jeanne M. Lusher, Enrique Ostrea, Ronald Poland, Thomas Shope, Harold Weiss

Adjunct Assistant Professors

Natalia Tanner-Cain, Jesse F. Goodwin, Seymour Gordon, John Harm, Thaddeus Joos, Samuel J. Nichamin, Helen Nutting, John J. Pollack, Irving Posner, Ali Rabbani, Richard Ryszewski, Allen Sosin, Gerald C. Timmis

Instructors

Edgardo L. Arcinue, Nora F. H. Chang, Barbara Cushing, Ceres E. Espiritu-Elefano, William Hoffman, Pauline Pevin, Yaddanapudi Ravindranath

Adjunct Instructors

John R. Birmingham, E. Dalton Black, Marshall J. Blondy, George L. Blum, Robert H. Burge, Alicia Canicosa-Sandoval, Barbara M. Chapper, Avinash Chawla, Raymond A. Clemens, Wyman C. Cole, Jr., James W. Collins, Robert S. Cooper, Eugene H. Crawley, Margaret R. Dietze, Filomena Q. Farooki, Nathan S. Firestone, Arthur M. Freedman, Carl A. Gagliardi, Max J. Garber, William Gatefield, Louis F. Heyman, William K. Howard, Philip Jackson, Jamil Kheder, Ruben Kurnetz, Etta L. Leahy, Ann Lublin, Irving M. Miller, William Montgomery, Wallace Nichols, Jr., Joseph Rivkin, Robert A. Rooney, William Rubinoff, William E. Rush, Robert A. Scherer, Marrison U. Scott, Warren E. Shelden,

Charles A. D. Steepe, Harvey S. Stein, Karl Stillwater, Bernard L. Toft, Harold R. Wagenberg, Allan D. Weiner, Edward Winbaum, Paul M. Zavell, Robert A. Zink

Associates

A. Joseph Brough, Assistant Professor of Pathology
Douglas E. Cox, Assistant Professor of Community Medicine
Joseph Fischhoff, Professor of Psychiatry
Charles N. Innis, Adjunct Assistant Professor of
Community Medicine
Ruben Meyer, Adjunct Professor of Community Medicine

Formal teaching in the Department of Pediatrics takes place during the third year and is conducted on the wards and in the clinics of the Children's Hospital of Michigan. The aim of this clerkship is to acquaint the students with the course of normal development, the common variations from this pattern, and the reaction of the immature to illness. An effort is made to incorporate all aspects of childhood in the allotted time of study so that full participation by members of the surgical, orthopedic, and psychiatric staff is invited. The technique of pedagogy used is built around the association of students with a principal instructor who chaperones his group both on the wards and in the clinic. Pediatrics maintains contact with the student before and after his clerkship, since members of the department contribute to the curriculum of basic science courses and support a very active elective program during the fourth year.

Pharmacology

Chairman: Bernard H. Marks

Professors

Daniel Couri, Saradindu Dutta, Harold Goldman, David Kessel, Bernard H. Marks

Associate Professors

Gordon F. Anderson, George E. Dambach

Assistant Professors

Robert D. Laird, James W. Putney, Jr., David Schneider, Eugene P. Schoener

Associates

Roy Aston, Associate Professor of Anesthesiology
Andrew K. S. Ho, Assistant Professor of Pharmacology,
College of Pharmacy
Chian L. Huang, Professor of Pharmacology,
College of Pharmacy

Pharmacology is the study of the action of chemicals on living systems, ranging in complexity from cells to intact organisms to societies. Research in pharmacology may involve microorganisms, mammals or man, either normal or diseased. The objective of pharmacology is establishment of the scientific basis for the understanding of rational thera-

peutics, and the identification, selection and use of drugs for the prevention, cure or amelioration of disease.

GRADUATE PROGRAMS

The Department of Pharmacology offers programs leading to the master's degree and to the Doctor of Philosophy degree. In general, it is not recommended that students elect to register for a master's degree program, except under unusual circumstances. A joint Ph.D.-M.D. program is also available.

Admission—Students are considered for admission to the graduate program of the Department of Pharmacology if they meet the requirements of the Graduate Division of the University and have a background in one of the chemical or biological sciences. Students with diverse backgrounds will be considered individually if they have special competence related to one of the departmental areas of interest. Applicants are expected to provide scores of the Graduate Record Examination, with an advanced test in either chemistry or biology. Personal interviews are very desirable. Letters of inquiry should be directed to the chairman of the graduate committee of the department.

Degree Requirements—Requirements for students enrolled in graduate degree programs are described in the Graduate Division section of this bulletin. Students are expected to demonstrate their understanding of basic biochemistry, 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. Inquiries should be directed to the chairman of the graduate committee of the department.

Physical Medicine and Rehabilitation

Chairman: Joseph N. Schaeffer

Professor

Joseph N. Schaeffer

Associate Professors

Frank S. Blumenthal, Joseph C. Honet, Harry O. Ingberg

Clinical Associate Professor

Frank Cullis

Assistant Professor

Joseph M. Markel

Clinical Assistant Professor

Alvin M. Brown

Instructors

Victor J. Nyboer, Jose R. Tandoc, Jr.

Clinical Instructors

Joseph F. Guyon, Myron M. LaBan

The Department of Physical Medicine and Rehabilitation provides the student with a knowledge of the patient as a person and not only of his disease. The student is taught to assess the neuromuscular, musculoskeletal and vascular systems and to manage disorders of these systems. In addition, the student is presented with a concept of rehabilitation which considers not only the disease or injury which leads to chronic disability, but also brings to bear forces which will ameliorate the social, psychologic, and vocational problems created by the disability in a total program to meet total needs. The teaching is by lecture, demonstration, staff conferences, and seminars, with the major emphasis upon the office practice. Clinical instruction is provided at the Rehabilitation Institute, the principal teaching facility. In addition, clinical instruction is provided at the following hospitals: Harper, Hutzel, Detroit General, Sinai, Grace and Children's.

Physiology

Chairman: Walter H. Seegers

Professors

Marion I. Barnhart, Piero P. Foa, Raymond L. Henry, Eberhard F. Mammen, Jan Nyboer, Walter H. Seegers, Robert S. Shepard

Adjunct Professor

Harlan D. Anderson

Associate Professors

Gordon F. Anderson, Richard R. Gala, Lowell E. McCoy

Adjunct Associate Professor

Robert M. Nalbandian

Assistant Professors

Robin A. Barraco, Paul C. Churchill, Joseph C. Dunbar, Christopher M. Fredericks, George C. Grignol, Jr., Louis N. Irwin, David M. Lawson, Genesis Murano, James A. Rillema, James A. Sedensky, P. George Simone, Ralph T. Walsh

Adjunct Assistant Professors

Asghar Shafadeh, Allen Silbergleit

Instructor

Daniel A. Walz

Associates

Louis R. Amundsen, Assistant Professor of Physical Therapy
Roy Aston, Associate Professor of Anesthesiology
Margo P. Cohen, Assistant Professor of Internal Medicine
E. S. E. Hafez, Professor of Gynecology and Obstetrics
William A. Saville, Assistant Professor of Health and Physical Education

Physiology is the study of bodily function in all of its ramifications, with special emphasis on the characteristics of health and the nature of stress. It aims to respect the concept of individuality in every case in its scientific consideration of the interrelationships, regulation and control of specific organ systems and functions.

GRADUATE PROGRAMS

The Department of Physiology offers programs leading to the Master of Science and Doctor of Philosophy degrees. The Master of Science program is recommended for students who already hold the degree of Doctor of Medicine. No duplication of work completed for the Doctor of Medicine degree may be included in the master's degree program. If a student who holds the Doctor of Medicine degree wishes to continue toward the Doctor of Philosophy degree, he is advised to select courses which represent self-development and excellence in some field of science related to his specialty. The preferred areas are physics, chemistry, mathematics, bacteriology, and anatomy.

Students planning a career in teaching or research in physiology who have not earned the degree of Doctor of Medicine, are advised to complete the requirements for the Doctor of Philosophy degree. For these students the degree of Master of Science is of limited practical use in that it may not qualify them for a suitable professional position.

Admission—Students must complete requirements for admission as stipulated by the Graduate Division. In addition, applicants for the Doctor of Philosophy degree are expected to have a personal interview with the chairman of the department.

Degree requirements—The over-all requirements for the Master of Science and Doctor of Philosophy degrees are set forth in the Graduate Division section of this bulletin.

Candidates for the Master of Science degree are expected to prepare theses of excellent quality. It is assumed that they will use the excellent facilities available for creative work in an effective, scholarly manner. Theses must be judged suitable for publication in one of the current scientific journals. This latter requirement may, in exceptional cases, be waived by the chairman of the department.

Financial Aid

The department has teaching assistantships and research fellowships available for a number of qualified students. All students accepted into the program are considered for financial assistance and no application forms are necessary for this purpose. Students presenting outstanding records are considered for Charles B. DeVlieg Foundation fellowships. Students on assistantships are advised to elect no more than twelve credits in a given quarter. All students, whether or not they hold a fellowship, are required to perform teaching duties in the medical and paramedical courses as part of their teacher-training activities. For more complete information on fellowships, students should consult or write to the Graduate Officer, Department of Physiology, Wayne State University School of Medicine, Gordon H. Scott Hall of Basic Medical Sciences, 540 East Canfield, Detroit, Michigan 48201.

Psychiatry

Chairman: Garfield Tourney

Professors

Joseph Fischhoff, Jacques Gottlieb, Elliot D. Luby, Norman Rosenzweig, Calvin E. Schorer, Garfield Tourney

Professor of Biochemistry in Psychiatry

Charles E. Frohman

Professor of Law in Psychiatry

Samuel I. Shuman

Professor of Psychopharmacology in Psychiatry

Edward F. Domino (visiting)

Professor of Sociological Psychiatry

H. Warren Dunham

Clinical Professors

Alexander Grinstein, Benjamin Jeffries, Peter A. Martin, Thomas A. Petty, Herbert A. Raskin

Associate Professors

Bruce L. Danto, Hugh C. Hendrie, Kenneth Schooff, Clyde B. Simson, Thomas M. Sullivan, Lawrence P. Tourkow, Ronald E. Trunsky, William J. Wertz

Associate Professor of Biophysics in Psychiatry

Charles R. Harmison

Clinical Associate Professors

Benjamin Barenholtz, Victor Bloom, Lawrence A. Cantow, Frank Cellar, Calvin H. Chen, Robert B. Clarke, Harold H. Davidson, Abraham Elson, James H. Graves, Sol C. Grossman, Alexander H. Hirschfeld, Sidney B. Jenkins, Viggo W. Jensen, Louis Koren, Joseph E. Lenzo, Channing T. Lipson, Paul Lowinger, Frank Parcells, Carol E. Pearson, Kenneth Pitts, Nathan Segal, Frederick Shevin, Joseph Slusky, Emanuel Tanay, Max Warren, Gordon Yudashkin

Assistant Professors

Lary R. Berkower, Leon E. A. Berman, Raymond Buck, Bernard Chodorkoff, Lawrence E. Jackson, Marvin Margolis, Steven Myers, Leonard R. Piggott, Ralph Rubenstein, Richard A. Ruzumna, Donald Silver, Ronald E. Trunsky, Habib Vaziri

Assistant Professor of Biochemistry in Psychiatry

Lew M. Hryhorczuk

Clinical Assistant Professors

Charles Barker, † Morton Barnett, Seymour Baxter, Robert C. Behan, Ronald W. Blatt, Dale Boesky, Melvin Bornstein, Adolfo J. Brane, Roy Craig, Jack Dorman, Paul H. Feldman, Max L. Gardner, Walter Guevara, Gerhardt Hein, Louis Hoffman, Calvin H. Hughes, Marvin Hyman, Nathan Kalichman, Pang L. Man, Ben Marks, Alvin B. Michaels, Morteza Minui, Milton Palmer, Arthur Pearce, Douglas Sargent, Marvin Sherman, Marvin Starman, Mayer Subrin, Robert S. Underhill

Instructors

Jaime Ayala, Romulo Ancog, Emmanuel Casenas, George H. Hopson, K. M. Druva Kumar, Raymond Mercier, Robert Niccolini, Anthony Petrilli, Vimal Pritpal Puri, Harvey Rosen, Evelio Santiago, Michael Short, Mary Stahly

Clinical Instructors

Irwin P. Adelson, Raman N. Bhavsar, Ruth Brackett, Alice S. Chester, James Conger, Joel S. Dreyer, Arthur L. Hughett, Edward L. Klarman, Walter G. Levick, Edward Missavage, Jr., Rufus H. Parrish, Merlin C. Townley, Odie T. Uddyback

Adjunct Instructor

Elaine N. Rogan

Associates

Albert F. Ax, Adjunct Professor of Psychology, College of Liberal Arts

Donald F. Caldwell, Adjunct Professor of Psychology, College of Liberal Arts

Jacob L. Chason, Chairman and Professor of Pathology

† Deceased

Shirley I. Dobie, Adjunct Associate Professor of Psychology,
College of Liberal Arts

LaMaurice H. Gardner, Adjunct Associate Professor of
Psychology, College of Liberal Arts

John Gilroy, Chairman and Professor of Neurology

Morris Goodman, Professor of Anatomy

James L. Grisell, Adjunct Associate Professor of Psychology,
College of Liberal Arts

Hyman Kempler, Adjunct Associate Professor of Psychology,
College of Liberal Arts

Elizabeth Kent, Adjunct Assistant Professor, College of
Nursing

Valerie Klinge, Adjunct Assistant Professor of Psychology,
College of Liberal Arts

Phillip M. Rennick, Adjunct Associate Professor of
Psychology, College of Liberal Arts

Ernst A. Rodin, Professor of Neurology

Martha K. Rodin, Associate Professor of Anatomy

Gerald Rosenbaum, Professor of Psychology,
College of Liberal Arts

Eli Z. Rubin, Adjunct Professor of Psychology,
College of Liberal Arts

The educational objective of the teaching program for undergraduate medical students in the Department of Psychiatry is to give the medical student an awareness of psychiatric problems as they are experienced in the practice of medicine, regardless of whether the student plans a general or specialty practice. The student is acquainted with the social, psychodynamic and biological factors involved in the development of personality and emotional conflicts. He is taught to recognize the importance of the emotional aspects in the doctor-patient relationship.

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. Preference will be given to those who have demonstrated interest in, or aptitude for, research and who show potential for an academic career.

Degree Requirements— Course work must include Psychiatry 0700, 0701, and 0702. The main emphasis of the program will be on a personal research project which must be planned and carried through under the guidance of the student's adviser, written up as a thesis, and defended in an oral examination. It is hoped that many students' theses will be of a standard acceptable for publication in a professional journal.

Radiology

Chairman: Kenneth L. Krabbenhoft

Professors

Kenneth L. Krabbenhoft, Raymond S. Kurtzman, Maurice Tattelman, Gertraud Wollschlaeger, Paul B. Wollschlaeger

Associate Professors

Shek Chyen Chen, Kenneth E. Corrigan, David Gelfand, Alan C. Scheer, Joseph E. Thornhill

Clinical Associate Professors

James C. Cook, Jack E. Handel, Donald L. Otto, Harold Perry, Joseph O. Reed, John N. Wolfe

Assistant Professors

Eugene A. Harkaway, Robert L. Ruskin, Frederick C. Stebner, William G. Van de Riet

Clinical Assistant Professors

Basil Considine, Jr., David P. Corbett, Joseph C. Evans, Leo S. Figiel, Steven J. Figiel, Eugene L. Freitas, George A. Kling, E. Frederick Lang, Kenneth D. McGinnis, Robert A. Songe, Fred K. Wietersen, Harvey I. Wilner

Instructors

Chung Ta Hsin, Nicholas M. Jackiw, Joseph Mantel, Razia Raouf

Clinical Instructors

Forrest J. Arnoldi, Philip N. Cascade, Bradley J. Cherenzia, Frederick R. Cushing, John K. Drumm, Marvin Gordon, John H. Griffin, Daniel R. Guyot, Joseph R. Jaconette, Thomas P. James, Myron H. Joyrich, Heung Ki Kim, Karl T. Kristen, E. Frederick Lang, Phillip E. Perkins, Francis P. Shea, Arthur Shufro, Frederick B. Watts, Jr., Raymond J. Whiteman

A program of undergraduate teaching is directed toward a total integration of the fundamentals of radiology with the basic sciences, particularly anatomy, physiology, chemistry, and pathology. In the revised curriculum radiologic instruction is correlated at freshmen and sophomore levels with other departments. Junior instruction is clinically oriented and numerous radiologic electives are offered in the senior year. Newer tools available in the field of radiology, such as image amplification fluoroscopy and cineradiography, and radioisotope techniques make possible a better demonstration of anatomic structure and physiologic activity. Techniques involving ultrasonography and thermography 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 out in gross pathology.

In the clinical years, teaching of radiologic diagnosis and radiation therapy is related to total patient care and such teaching is, therefore, predominantly correlated with other clinical departments. The clinical aspects and applications of radiologic diagnosis, radiation therapy and radioisotopes are taught during clerkships and in the clinics and various inter-departmental conferences.

Urology

Chairman: James M. Pierce, Jr.

Professors

Alan D. Perlmutter, James M. Pierce, Jr.

Clinical Professors

Frank B. Bicknell, Donald J. Jaffar

Clinical Associate Professors

Harvey Y. Lewis, Edward J. Shumaker

Assistant Professors

Edmond T. Gonzales, J. Edson Pontes, Bageshwari P. Sinha

Clinical Assistant Professors

Benjamin W. Dovitz, Melvin L. Hollowell, Harold V. Morley, William H. Rattner, Guy W. Sewell, Robert C. Thumann, Jr.

Instructor

Wayne K. Stefanciw

Clinical Instructors

Charles Kessler, Joel Kriegel, Murray S. Mahlin, Joseph R. Oldford, George L. Reno, George R. Sewell, Jr., Jeremy D. Webster

Associates

Gordon F. Anderson, Associate Professor of Physiology
Christopher M. Fredericks, Assistant Professor of 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 are on surgery, a one-week course is given in the basics of urological care. Several senior electives are offered varying from four to eight weeks. There is a urology-nephrology elective at the Hutzel Hospital in the area of adult urinary tract disease. This can be either four or eight weeks. There is also a similar elective in children at the Children's Hospital of Michigan. A totally urologic elective can be had either at the Children's Hospital or at the Hutzel Hospital. The clinical material available to the student is extremely large and varied. It offers some excellent opportunity for learning the basic principles of disease processes of the urinary tract and the proper examination of patients.



COURSES OF INSTRUCTION¹

Anatomy (ANA)

0756. Neuroanatomy. Cr. 4-8.

For anatomy graduate students. Prereq: written consent of instructor.

0757. Cell and Tissue Ultrastructure. Cr. 3.

Prereq: consent of instructor.

0758. Gross Anatomy: Head and Neck. Cr. 2-6.

Prereq: consent of instructor.

0759. Gross Anatomy: Thorax, Abdomen and Pelvis. Cr. 2-6.

Prereq: consent of instructor.

0760. Gross Anatomy: Back and Limbs. Cr. 2-6.

Prereq: consent of instructor.

0761. Special Dissection. Cr. 1-15.

Prereq: consent of instructor.

0762. Molecular Biology and Primate Evolution. Cr. 2-4.

(Laboratory required for 4 credits).

Prereq: consent of instructor. Principles of immunoembryology, immunogenetics, and biochemical systematics, and their application to the study of primate evolution.

0763. Experimental Morphology. Cr. 2-6.

For anatomy graduate students. Prereq: consent of instructor.

0764. Histology. Cr. 3.

For non-anatomy majors. Prereq: consent of instructor.

0765. Principles of Neuroanatomy. Cr. 3-5.

For non-anatomy majors. 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.

0766. Special Projects in Anatomy. Cr. 1-15.

Prereq: consent of instructor.

0768. Living Anatomy. Cr. 3-6.

Prereq: consent of instructor.

0769. Fetal and Neonatal Anatomy. Cr. 3.

Prereq: ANA 0758-0760; consent of instructor.

0770. Histological and Histochemical Techniques. Cr. 4-6.

Prereq: ANA 0781; consent of instructor. The preparation of material for microscopic examination.

0771. Human Reproduction. Cr. 2-5.

Prereq: consent of instructor. Reproductive system macroscopic and microscopic structure, regulation and function during development and in the adult.

0772. Anatomy of the Visual System. Cr. 2-5.

Prereq: consent of instructor; knowledge of French or German helpful. Basic sciences, such as histology and embryology, as they relate to the visual system.

0774. Human Biology. Cr. 2-5.

Prereq: consent of instructor. Quantitative human population biology. Current research in normal human biological variation and its causes.

0775. Advanced Neuroanatomy. Cr. 5.

Prereq: ANA 0756 or 0765; consent of instructor. Detailed study of whole brain sections of the human brain cut in frontal, horizontal and sagittal planes.

0776. Autonomic Nervous System. Cr. 2-5.

Prereq: ANA 0756; consent of instructor.

0777. Historical Aspects of Anatomy. Cr. 2-5.

Prereq: consent of instructor; knowledge of French or German helpful. Special topics or eras in the history of gross anatomy, histology, embryology, and neuroanatomy.

0778. Neurophysiology. Cr. 3.

Prereq: consent of instructor.

0779. Experimental Neuroanatomy and Neurophysiology. Cr. 1-15.

Prereq: ANA 0756 or 0765, and 0778 or 0798 or equiv.; consent of instructor. Advanced studies on the nervous system with emphasis on technical methods. Experiments using various electrophysiological or neurohistological techniques.

0780. Comparative Neuroanatomy. Cr. 2-6.

Prereq: ANA 0756 or 0765; consent of instructor. Nervous systems of representative vertebrate forms. Brain shifts and modifications occurring throughout phylogeny. Human brain and its position in the evolutionary scale.

0781. Human Microscopic Anatomy. Cr. 5.

Prereq: consent of instructor. The microscopic structure of tissues and organs.

0782. Human Developmental Anatomy. Cr. 5.

Prereq: consent of instructor; knowledge of French or German helpful. Human development from fertilization; emphasis on the embryonic period proper (first eight weeks).

0783. Experimental Embryology. Cr. 2-5.

Prereq: ANA 0782 or equiv. 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.

0790. Directed Study in Physical Anthropology (ANT 0790). Cr. 2-12.

Prereq: consent of instructor.

0795. Research. Cr. 1-15.

Prereq: consent of instructor.

0797. Seminar. Cr. 1-6.

Prereq: consent of instructor.

0798. Seminar in Neurophysiology. Cr. 1-2.

Prereq: ANA 0756 or 0765 and ANA 0778 or equiv.; consent of

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

instructor. Electrical and chemical phenomena of neural membrane and synapses.

0800. Special Topics in Anatomy. Cr. 1-15.

Prereq: consent of instructor. Directed study.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Audiology (AUD)

Graduate courses in audiology are listed in the College of Liberal Arts Department of Speech Communication and Theatre, See p. 367.

Biochemistry (BCH)

0701. General Biochemistry Lecture. Cr. 3.

Credit only on completion of Biochemistry 0703. Prereq: quantitative analysis, organic chemistry. BIO 0160 or equiv.

0702. General Biochemistry Laboratory. Cr. 4.

Credit only on completion of Biochemistry 0704. Prereq: quantitative analysis, organic chemistry. BIO 0160 or equiv.

0703. General Biochemistry Lecture. Cr. 3.

Prereq: BCH 0701 or equiv.

0704. General Biochemistry Laboratory. Cr. 4.

Prereq: BCH 0702 or equiv.

0756. Selected Topics in Biochemistry. Cr. 3.

Prereq: BCH 0703 and 0704 or equiv. Subject of current importance in biochemistry discussed.

0757. Advanced Intermediary Metabolism. Cr. 3.

Prereq: BCH 0703 and 0704 or equiv. Metabolic pathways and their regulation in various biological systems, with emphasis on the current and classical literature.

0759. Physical Biochemistry. Cr. 3.

Prereq: BCH 0703 and 0704 or equiv; CHM 0542, 0543.

0760. Biochemical Applications of Radioactive Isotopes. Cr. 2.

Prereq: BCH 0703 and 0704 or equiv.

0762. Biological Macromolecules. Cr. 3.

Prereq: BCH 0701-0704 or equiv. A survey of the chemical structures of some biologically important macromolecules, their physical properties and of the relationships between the two.

0763. Analytical Techniques. (0,12). Cr. 4.

Prereq: BCH 0701-0704 or equiv. Introduction to some of the experimental approaches used in investigations of the relationships between structure and function of biological macromolecules.

0764. Enzymology. Cr. 3.

Prereq: BCH 0701-0704 or equiv., and one course in physical chemistry. Survey of the general principles of enzymology with emphasis on the kinetics of enzyme action.

0766. Bioenergetics. Cr. 3.

Prereq: BCH 0701-0704. Survey of energy-linked biochemical processes in the cell, including interrelationships and control of bioenergetic processes. Current literature cited.

0767. Advanced Biochemistry Laboratory. Cr. 4.

Prereq: BCH 0703, 0704. Advanced laboratory techniques as applied to investigations of biological materials.

0768. Molecular Biological Aspects of Nucleic Acid Biochemistry. Cr. 3 or 5.

Prereq: BCH 0701-0703 or equiv. or consent of instructor. Current concepts of nucleic acid chemistry and biochemistry, protein synthesis and cellular regulatory mechanisms.

0769. Biochemistry of Disease. Cr. 3.

Prereq: BCH 0701-0703 or equiv. or consent of instructor. The relationship of biochemistry to selected medical disorders.

0790. Directed Study. Cr. 1-15 (Max. 15).

Prereq: BCH 0701-0704, consent of instructor and departmental graduate committee. Instruction and laboratory work in advanced analytical and preparative techniques used in biochemistry. Written progress report required each quarter.

0795. Research. Cr. 1-15 (Max. 15).

Prereq: consent of adviser and graduate officer.

0797. Seminar. Cr. 1 (Max. 6).

Prereq: BCH 0703 and 0704 or equiv.

0867. Special Topics in Biochemistry. Cr. 3 (Max. 9).

Prereq: BCH 0703 or equiv. Recent developments. Topics to be announced in Schedule of Classes.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Comparative Medicine (COM)

0701. Introduction to Animal Experimentation and Use. (2,2). Cr. 3.

Prereq: consent of instructor. Introduction to commonly used laboratory animal species and methods of experimentation and care relative to each, including the history of animal use in biomedical research and teaching.

0702. Principles of Experimental Surgery. (3,4). Cr. 5.

Prereq: consent of instructor. Instrumentation and sterile technique, anesthesia, basic surgical technique, demonstration of experimental surgery models, and postoperative care relative to experimental animals.

0703. Diseases of Laboratory Animals. (3,4). Cr. 5.

Prereq: COM 0701, consent of instructor. Diseases of commonly used laboratory animals: mouse, rat, guinea pig, hamster, rabbit, dog and cat. Concerns for prevention and control are developed.

0708. General Comparative Pathology (OEH 0708). (4,0). Cr. 4.

Prereq: basic anatomy, physiology, microbiology, biochemistry or consent of instructor. Introduction to pathology; basis for the study of the pathology of mammals, birds, and homiothermic vertebrates.

0709. General Comparative Pathology Laboratory. (0,4). Cr. 2.

Prereq. or coreq: COM 0708. Laboratory techniques in general and experimental pathology. Principles of diagnostic cytology.

0731. Comparative Pathology. (3,4). Cr. 5.

Prereq: COM 0708 or equiv. Cross-section through spontaneous disease of laboratory animals, including the etiology, pathogenesis, and postmortal gross and microscopic lesions. Comparison to human disease.

0795. Research. Cr. 1-15.

Prereq: consent of adviser. Original investigation in the field of comparative medicine.

0797. Seminar. Cr. 1 (Max. 6).

Prereq: consent of instructor. Presentations by graduate staff, advanced students, and visiting lecturers.

Immunology and Microbiology (MIC)

0551. Bacteriology and Immunology. Cr. 6.

Prereq: BIO 0160, CHM 0227. Credit only on satisfactory completion of Microbiology 0552.

0552. Pathogenic Fungi and Parasites. (2,6). Cr. 4.

Prereq: MIC 0551. Fungi, viruses and parasites in human infections.

0553. Pathogenic Microorganisms. Cr. 4.

Prereq: MIC 0552. Advanced diagnostic methods for bacteria, fungi and viruses presented and discussed with conferences and practical demonstrations.

0660. Medical Mycology. (2,4). Cr. 3.

Prereq: MIC 0551 or equiv.

0750. Introductory Microbiology. (2,6). Cr. 4.

Prereq: Organic chemistry. Basic aspects of immunology, virology, bacteriology, genetics and mycology.

0751. Medical Microbiology I. (3,9). Cr. 6.

Credit only on completion of Microbiology 0752. Prereq: MIC 0750 or equiv.; consent of department graduate officer.

0752. Medical Microbiology II. (2,6). Cr. 4.

Prereq: MIC 0751.

0753. Special Topics in Microbiology. Cr. 1-5 (Max. 8).

Prereq: MIC 0551 or 0752.

0756. Descriptive Bacteriology. (2,0). Cr. 2.

Prereq: MIC 0752 or equiv.

0758. Clinical Microbiology Practice. (10,5). Cr. 3.

Prereq: MIC 0551 and 0552 or 0751 and 0752 or equiv. Training and experience in diagnostic microbiology with supervision and practical training in a hospital diagnostic laboratory.

0760. Immunology. (3,0). Cr. 3.

Prereq: MIC 0551 or 0752.

0770. Virology. Cr. 3.

Prereq: MIC 0552, 0752, or equiv.

0771. Virology Laboratory. (0,2 or 6). Cr. 1-3.

Coreq: MIC 0770.

0775. Bacterial Metabolism. (2,0). Cr. 2.

Prereq: MIC 0551 or 0752; BIO 0720; CHM 0662.

0776. Bacterial Metabolism Laboratory. (0,9). Cr. 3

Prereq: MIC 0551 or 0752; BIO 0720; CHM 0662. Introduction to basic laboratory technics in the handling of a variety of enzyme systems.

0780. Microbial Genetics. Cr. 3.

Prereq: BIO 0507, MIC 0551, 0752 or consent of instructor. Brief review of Mendelian genetics, meiosis and mitosis. Mechanisms of genetic recombination in bacteria, bacteriophage and molds; the nature of mutation and selected aspects of cellular control mechanisms and DNA replication.

0781. Techniques in Microbial Genetics. (0,9). Cr. 3.

Prereq: BIO 0708 or 0608 or equiv.; prereq. or coreq: MIC 0780, or consent of instructor. Selection of mutants of bacteria, bacterial transformation, DNA hybridization, selected use of radioactive isotopes, bacterial recombination; special project.

0795. Research. Cr. 1-10 (Max. 10).

Prereq: consent of adviser or graduate officer.

0797. Seminar. Cr. 1.

Prereq or coreq: MIC 0751.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Occupational and Environmental Health (OEH)

0502. Principles of Industrial Hygiene. Cr. 4.

Prereq: consent of instructor for non-degree candidates.

0504. Principles of Urban Environmental Health. Cr. 4.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0540. Lighting and Non-Ionizing Radiation. Cr. 3.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0550. Environmental Health Planning and Administration. Cr. 2.

Prereq: consent of instructor for non-degree candidates. Planning and administration of industrial hygiene, environmental control and

other field surveillance and control programs, budget preparations, PERT and Gant systems.

0570. Radiological Health. Cr. 3.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0580. Principles of Industrial Noise Control. Cr. 3.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0585. Environmental Control of Microbiological Contamination. Cr. 3.

Prereq: BIO 0220 or equiv.; introductory college chemistry, physics and mathematics. Open only to junior, senior or graduate science majors. Study of the occurrence, evaluation and control of microbiological agents such as bacteria in yeasts, molds, fungi and pollens in the environment.

0590. Consumer Health Hazard Protection and Toxicology. Cr. 2.

Prereq: consent of instructor for non-degree candidates. Consumer protection from food adulterants, food additives, drugs and other consumer commodities. Organization of poison control centers.

0602. Aerosol Technology. Cr. 2.

Prereq: PHY 0213, 0214, 0215; MAT 0211; consent of instructor. The physical properties of airborne particulates; gravitational, optical, thermal, electrical; characterization of toxicants in biological systems.

0605. Atmospheric Pollution. Cr. 4.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0610. Occupational Diseases of the Skin. Cr. 4.

Credit only if working toward master's or doctorate. Prereq: medical degree, internship and trainee in dermatology. Short-term didactic and field course in the diagnosis, treatment and prevention of occupational diseases of the skin.

0652. Biology of Populations. Cr. 4.

Prereq: consent of adviser. Fundamental ideas — illustrated by the best studied examples — of four major areas in which the characteristics of a population assume importance not apparent in individuals: ecology, population genetics, social behavior, and epidemiology.

0660. Industrial Hygiene Practice. Cr. 2.

Prereq: OEH 0502. Field visits with working industrial hygienists and air pollution abatement engineers. Reports of survey required.

0670. Optical Microscopy for Industrial Hygienists. (1,2). Cr. 2.

Prereq: OEH 0720. Use of optical microscope in identification and quantification of particles of interest in industrial hygiene and air pollution control.

0708. (COM 0708) General Comparative Pathology. Cr. 4.

Open only to occupational and environmental health students. Prereq: basic courses in physiology and microbiology recommended; consent of instructor.

0709. Selection and Care of Laboratory Animals. Cr. 2.

Prereq: graduate status or consent of instructor. A survey of the laboratory animal requirements for toxicology testing; covers the rat, mouse, guinea pig, hamster, swine, dog, and primates; selection of animals, housing, diet needs, and limitations of each species.

0710. Principles of Industrial Toxicology. Cr. 4.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0712. Topics in Advanced Toxicology. Cr. 1.

Prereq: OEM 0710 and consent of instructor.

0716. Fibrogenic Dusts. Cr. 2.

Prereq: OEH 0710; consent of instructor for non-degree candidates. Survey of the mineral kingdom, especially various forms of silica and silicates, from the viewpoint of their toxicology. The pneumonoses, their pathogenesis, clinical course and therapy.

0717. The Toxicology of Metals. Cr. 2.

Prereq: OEH 0502 or 0710 or equiv. The toxicity of metals and their compounds. Acute and chronic poisonings in occupational situations; their pathogenesis, clinical course, and therapy.

0718. The Toxicology of Organic Compounds. Cr. 2.

Prereq: OEH 0710 or consent of instructor. Survey of organic chemicals by major compound classes from the viewpoint of their occupational and environmental toxicology; drug toxicity not considered. Industrial intermediates, agricultural chemicals, household substances. Pesticide poisonings, their pathogenesis, clinical course, and therapy.

0720. Air Sampling and Analysis. Cr. 4.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0730. Industrial Hygiene Chemistry. Cr. 5.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0741. Statistical Applications in Industrial Hygiene. Cr. 3.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0745. Epidemiology. Cr. 3.

Prereq: OEH 0502; consent of instructor for non-degree candidates. Study of populations to determine incidence of disease and disability. Use of biological and statistical evidence; studies of specific epidemics and occurrences.

0750. Industrial Hygiene Control Methods. (5-7,7-9). Cr. 3.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0760. Industrial Hygiene Control Methods — Ventilation. Cr. 4.

Prereq: OEH 0502; consent of instructor for non-degree candidates.

0761. Advanced Ventilation. Cr. 3.

Prereq: OEH 0760; consent of instructor for non-degree candidates.

0785. Journal and Film Review. Cr. 1.

Prereq: OEH 0502; consent of instructor for non-degree candidates. Current journal literature in industrial hygiene, toxicology and environmental pollutions. Recent training films on these subjects.

0790. Directed Study. Cr. 1-6 (Max. 6).

Prereq: OEH 0502 and consent of graduate officer; consent of instructor for non-degree candidates.

0797. Seminar in Industrial Medicine and Hygiene. Cr. 1.

Prereq: consent of instructor for non-degree candidates.

0799. Master's Essay Direction. Cr. 1-3.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

Pathology (PTH)

0500. Fundamentals of Pathology. Cr. 2.

Coreq: ANA 0301. For allied health students. Fundamentals of tissue injury and repair.

0600. Clinical Cytopathology. Cr. 7-8 (Max. 15).

Prereq: consent of instructor.

0705. Introductory Hematology. Cr. 3.

Prereq: enrollment in affiliated pathology program or consent of instructor.

0706. Dermatologic Slide Seminar. Cr. 1.

Prereq: M.D. degree, residence in pathology, consent of instructor. Demonstration and discussion of dermatopathologic sections stained by histologic and histochemical methods. Discussion of histochemical principles as applicable.

0707. Gynecologic Pathology. Cr. 3.

Prereq: M.D. degree.

0710. Urologic Pathology. Cr. 3.

Prereq: M.D. degree.

0711. Pathology of Bone and Joint Diseases. Cr. 3.

Prereq: M.D. degree.

0712. Pathology of Parasitic Diseases. Cr. 3.

Prereq: M.D. degree.

0713. Neuropathology. Cr. 3.

Prereq: consent of instructor.

0714. Dermatopathology. Cr. 3.

Prereq: M.D. degree.

0715. Pathology of Respiratory Tract. Cr. 3.

Prereq: M.D. degree.

0716. Surgical Pathology. Cr. 3.

Prereq: M.D. degree.

0717. Cytodiagnosis of Cancer. Cr. 3.

Prereq: M.D. degree.

0718. Pathology of the Heart. Cr. 3.

Prereq: M.D. degree.

0719. Advanced Hematology. Cr. 3.

Prereq: PTH 0705; consent of instructor.

0720. Histopathology of Ear, Nose and Throat. Cr. 2.

Prereq: M.D. degree.

0721. Forensic Pathology. Cr. 3.

Prereq: M.D. degree.

0722. Heart Conference. Cr. 2.

Prereq: M.D. degree.

0723. Blood Banking — Theories and Procedures. Cr. 3.

Prereq: M.D. degree.

0724. Liver and Renal Functions — Diagnostic Tests and Their Interpretations. Cr. 3.

Prereq: M.D. degree.

0725. Instrumentation in Clinical Biochemistry. Cr. 3.

Prereq: M.D. degree.

0726. Clinical Radioisotopes — Theory and Application. (2,2). Cr. 3.

Prereq: consent of instructor. Theory and practice of radioisotope laboratory diagnosis. Classical and modern physics instrumentation; statistics; computation of radiation dose and radioisotope safety. Laboratory includes blood volume determinations, thyroid uptake and scan, iron metabolism, renal function.

0727. Blood Coagulation. (2,2). Cr. 3.

Prereq: consent of instructor. Physiology of blood clotting, with evaluation of several techniques. Pathology of blood clotting, acquired and inherited.

0728. Medical Statistics. Cr. 3.

Prereq: consent of instructor; trigonometry and intermediate algebra recommended. Principles and computational methods of quantitative aspects of medical procedure; elementary correlation theory and prediction, sampling problems, tests of hypotheses, elementary test theory, interpretation of results.

0729. Metabolism of Disease. (2,0). Cr. 3.

Prereq: BCH 0701, 0702, 0703, 0704, 0705, 0706, or equiv. Alterations of biochemistry associated with disease processes, with emphasis on the application of newer biochemical principles.

0730. Cell and Tissue Ultrastructure. Cr. 3.

Prereq: consent of instructor. Meets for two-hour sessions weekly comprising lectures, assigned reports presented by the students, as well as group discussion.

0732. The Physiopathology of Mycologic Disease. (2,3). Cr. 2.

Prereq: consent of instructor. Cryptococcus candidiasis, North American blastomycosis, South American blastomycosis, histoplasmosis, chromoblastomycosis.

0733. Pathology of the Kidney. (15,0). Cr. 3.

Prereq: M.D. degree; consent of instructor. Techniques of preparing renal biopsies for light and electron microscopy and immunofluorescent studies; ultrastructure of normal kidney; physiology of kidney — acute and chronic renal failure; glomerular disease; pyelonephritis; vascular disease; and acute tubular necrosis and renal transplantation.

0734. Molecular Cytology. Cr. 3.

Prereq: consent of instructor. Basics of electron microscope; specimen collection and tissue processing; general ultrastructural organization of various organ systems and pathologic alterations in organ systems of the fine structural level.

0735. Radioisotope Techniques and Theory. (2-4,6). Cr. 4.

Prereq: consent of adviser and instructor. A directed study in radioisotope techniques for biological and medical scientists.

0736. Ophthalmic Pathology. Cr. 3.

Prereq: M.D. degree, consent of instructor, resident in pathology or ophthalmology. Pathologic changes of diseases of the eyes in humans.

0737. Oral Pathology. Cr. 3.

Prereq: M.D. or D.D.S. degree, consent of adviser and instructor. Presentation of inflammatory, reactive and neoplastic diseases of the oral cavity and surrounding structures.

0738. Medical Cytogenetics. Cr. 3.

Prereq: M.D. degree; residency in W.S.U. Residency Program in Pathology; consent of adviser and instructor. Basic principles of human heredity; autosomal and sex chromosomal defects in various pathological diseases; survey of current cytogenetic techniques.

0740. Immunology for Pathologists. (2,0). Cr. 2.

Prereq: M.D. degree; consent of instructor. Open only to residents in W.S.U. Residency Program in Pathology. Recent advances in the field of immunology.

0741. Nuclear Medicine Seminar. Cr. 4.

Prereq: M.D. degree and consent of instructor. Will include physics, biology and dosimetry, instrumentation and safety plus an introduction to clinical applications of nuclear medicine with emphasis on the application of hematologic and dilution studies, competitive binding, other in vitro assays, organ function tests, and autoadiography.

0742. Pathology of Disease Caused by Animal Agents. Cr. 3.

Prereq: M.D. degree; resident in W.S.U. Residency Program in Pathology; consent of adviser or instructor. Biology, pathology, laboratory diagnosis and control of parasitic diseases including special consideration of zoonosis and vectors.

0743. Forensic Pathology and Jurisprudence. Cr. 3.

Prereq: M.D. degree; resident in W.S.U. Residency Program in Pathology; consent of instructor. Relationship of physicians to the law. Public health aspects of forensic pathology, workmens' compensation, and the pathology of trauma and sudden death.

0744. Pathology of Tumors of the Bones and Joints. Cr. 3.

Prereq: M.D. degree; resident in W.S.U. and Affiliated Hospital Training Program; consent of instructor. Important tumors and tumor-like conditions involving bones and joints.

0745. Comparative Pathology of Laboratory Animals. Cr. 3.

Prereq: completed training in general pathology or equiv. Spontaneous animal disease with particular consideration of important diseases in laboratory animals and disease entities that bear analogy to human disease and thus may serve as experimental models.

0790. Directed Study in Clinical Pathology and Pathologic Anatomy. Cr. 2 (Max. 18).

Prereq: M.D. degree, consent of adviser and graduate officer; resident in pathology.

0795. Research. Cr. 1-2 (Max. 10).

Prereq: M.D. degree; consent of adviser and graduate officer; resident in pathology.

0797. Seminar: Pathologic Anatomy. Cr. 1.

Prereq: M.D. degree and approved internship; resident in pathology.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser and graduate officer.

Pharmacology (PHC)

0750. Pharmacology Lecture. Cr. 5.

Prereq: PSL 0752 or equiv.

0751. Pharmacology Laboratory. Cr. 2.

Prereq: BCH 0701, 0703; PHC 0750. Experience in experimental pharmacology; methods and techniques employed in studying the effects of drugs on man and animals.

0755. Recent Developments in Pharmacology. Cr. 1-6 (Max. 6).

Prereq: PHC 0751 or equiv.

0763. Individual Studies in Pharmacology. Cr. 1-12.

Prereq: consent of instructor.

0768. Introduction to Clinical Pharmacology. Cr. 2.

Prereq: PHC 0751, BCH 0701-0703, M.D. degree or Ph.D. in pharmacology or related field. Administrative and legal requirements for undertaking human studies of drugs; enrollment presupposes a serious interest in pharmacology or the clinical study of drugs.

0769. Historical Development of Modern Pharmacology. Cr. 1.

Prereq: PHC 0751, BCH 0701-0703. The historical development of pharmacology as a cognate science from Arabic and European medicine. Library readings and term paper.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Cr. 1-15 (45 required).

Prereq: consent of graduate committee.

Physiology (PSL)

0752. Physiology. Cr. 5 (Max. 10).

Prereq: BCH 0705, 0706, or equiv.

0753. Experimental Physiology. Cr. 2 (Max. 4).

Prereq: PSL 0752.

0754. Water and Electrolyte Balance. Cr. 3.

Prereq: PSL 0752 or consent of instructor. A detailed treatment of the physiological mechanisms promoting homeostasis of the body fluid volumes and ionic composition in the mammal.

0756. General Endocrinology. Cr. 3 (Max. 9).

Prereq: PSL 0753 or equiv.

0757. Reproductive Physiology. Cr. 2.

Prereq: PSL 0753 or equiv.

0758. Survey of Physiology. Cr. 1.

Prereq: PSL 0753 or equiv.

0759. Blood. Cr. 2 (4 required).

Prereq: PSL 0753 or equiv.

0760. Recent Developments in Cardiovascular Physiology. Cr. 3-4.
Prereq: PSL 0753.

0761. Biophysical Measurements. Cr. 3.
Prereq: PSL 0752 and 0753, or consent of instructor. Biophysical basis of techniques in neurophysiology, cardiovascular physiology, and protein chemistry.

0762. Physiologic Anatomy — Basic Concepts. (2,2). Cr. 4.
Prereq: consent of instructor. Lectures and human dissection directed toward the study of the basic organizational concepts of the various systems of the body.

0763. Special Problems in Physiology. Cr. 1-3.
Prereq: consent of instructor.

0764. Cellular Physiology. Cr. 3.
Prereq: advanced chemistry and biology courses.

0765. Surgical Physiology. (2,2). Cr. 4.
Prereq: consent of instructor. Lectures and laboratory sessions devoted to the basic concepts of surgical principles and techniques related to experimental physiology.

0766. Neurophysiology. Cr. 4.
Prereq: PSL 0752. Selected topics from the anatomy and physiology of the neuron and the mammalian nervous system.

0767. Introductory Biostatistical Methods. Cr. 5.
Prereq: consent of instructor; experience in use of Computing and Data Processing Center. Basic probability; random sampling; binomial, Poisson, normal distributions; confidence intervals/hypothesis testing; linear regression/correlation; analysis of variance; selected problems for digital computers.

0770. Neuroendocrinology and Reproduction. Cr. 3.
Prereq: general endocrinology and neuroscience; consent of instructor. Principles of neurosecretion and neuroendocrine control in vertebrates, anatomy of mammalian central nervous system and pituitary gland, hormones produced by pituitary gland and reproductive processes influenced by neural processes.

0771. Mechanisms of Hormone Action and Secretion. (4,0). Cr. 4.
Prereq: PSL 0752, BCH 0701 and 0703 or equiv. Specific topics illustrating various mechanisms by which hormones are secreted and act on target cells. Experimental design used to obtain this knowledge reviewed in detail.

0795. Research. Cr. 1-10 (Max. 10).
Prereq: consent of graduate adviser.

0797. Seminar. Cr. 1 (Max. 6).

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).
Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.
Prereq: consent of doctoral adviser.

Psychiatry (PYC)

0701. Seminar in Psychiatric Research I. Cr. 5.
Credit only on satisfactory completion of Psychiatry 0703. Introduction to the methodology of research from the point of view of the biologic and behavioral sciences; initial application to personal research project.

0702. Seminar in Psychiatric Research II. Cr. 5.
Prereq: PYC 0701. Credit only on satisfactory completion of Psychiatry 0703. Introductory statistics as applied to the biologic and behavioral sciences. Elements of computer programming and electronic data processing, as used to retrieve and analyze psychiatric data.

0703. Seminar in Psychiatric Research III. Cr. 5.
Prereq: PYC 0702. Detailed reviews of specific methodological problems in sciences associated with psychiatry, such as sociology, medicine, psychophysiology, or neurophysiology. Progress or final report on personal research project.

0706. Computer Programming in Biostatistics I. (3,2). Cr. 5.
Credit only on completion of Psychiatry 0707. Prereq: high school algebra. Open only to graduate students in School of Medicine. Basic computer programming and biostatistics.

0707. Computer Programming in Biostatistics II. (3,2). Cr. 5.
Prereq: PYC 0706. Open only to graduate students in School of Medicine. Continuation of Psychiatry 0706.

0790. Directed Study. Cr. 1-5 (Max. 15).
Prereq: consent of adviser; coreq: PYC 0701 or 0702 or 0703. Study, including full literature of review, of a problem of current relevance to psychiatry. Detailed guidance by adviser.

0795. Research Problems. Cr. 1-5 (Max. 15).
Prereq: consent of adviser; coreq: PYC 0701 or 0702 or 0703. Preparation of protocols or schedules for data collection. The gathering of data in a field related to psychiatry; accurate and systematic recording.

0899. Master's Thesis Research and Direction. Cr. 4-8 (Max. 12).
Prereq: consent of adviser. The preparation in writing of a coherent, complete and reasoned argument based on the research done in Psychiatry 0795.

Radiology (RAD)

0501. Radiological Physics I. Cr. 4.
Prereq: PHY 0218. Nature of radiation and its interaction with matter. Theory of dosimetry and instrumentation for detection of radiation. Principles of radiation protection. Specific problems in medical application of radiation.

0502. Radiological Physics II. (3,3). Cr. 4.
Prereq: RAD 0501. Continuation of Radiology 0501.

0503. Survey of Medical Radiation Uses and Hazards. Cr. 4.
Prereq: RAD 0501 and 0502. X-ray generating equipment. Patient dose for diagnostic procedures. Patient dose in therapy. Diagnostic and therapeutic uses of radioisotopes.

0512. Radioactive Tracer — Methodology. (1,3). Cr. 2.
Prereq: RAD 0501 or equiv.; one course in college biology and

chemistry. Uses of radioactive isotopes as tracers in biological, chemical, and engineering studies. Design of experiments, preparation and counting of samples; analysis of results.

0521. Health Physics. Cr. 4.

Prereq: RAD 0501, consent of instructor. Lectures which emphasize the theory and applications of health physics.

0522. Radiation Hazards Laboratory. (0,9). Cr. 3.

Prereq: RAD 0521 or equiv. Laboratory and field exercises with commonly used equipment in health physics practice.

0700. Physics of Diagnostic Radiology. Cr. 4.

Prereq. or coreq: RAD 0501. Effect of quality and quantity of penetrating radiation on the diagnostic image as detected by films, screens and image amplifiers. Effect and control of scatter. Production of best image with least exposure dosage.

0701. Radiation Dosimetry I: General Theory. Cr. 4.

Prereq. or coreq: RAD 0501. Basic theory of dosage. Precise physical measurements of radiation as applied to a biological system.

0702. Radiation Dosimetry II: Instrumentation. Cr. 4.

Prereq: RAD 0701. The precision instruments of radiation dosimetry. Theory, structure, operation, application to clinical dosage. Limitations and sources of error.

0703. Radiation Dosimetry III: Radiation Field Theory. Cr. 4.

Prereq: RAD 0502. Radiation field theory. Problems of the limitation and effect of single, multiple and moving radiation fields.

0710. Physics of Nuclear Medicine. Cr. 4.

Prereq: RAD 0502. The fundamental physics of nuclear transformations. Production and decay of radioisotopes. Nuclear emission radiations; their detection and measurement.

0711. Advanced Radiation Biology. (4,0). Cr. 4.

Prereq: BIO 0500. Selected topics in vertebrate and general radiobiology presented in greater detail than in Biology 0500. Includes acute radiation syndrome, morphologic and physiologic pathology, recovery, repair, and late effects.

0712. Advanced Radiation Biology Laboratory. (0,5). Cr. 2.

Prereq: consent of instructor; prereq. or coreq: RAD 0711 Practical experience with the principles and methods considered in Radiology 0711.

0713. Radiation Dosimetry I. Cr. 4.

Prereq: RAD 0502. Exact physical and mathematical treatment of the dosimetry of electromagnetic radiation and beams of particles.

0714. Radiation Dosimetry II. Cr. 4.

Prereq: RAD 0713. Continuation of Radiology 0713 with emphasis on practical application of the fundamental theory.

0715. Radiation Fields and Their Dosimetry. Cr. 4.

Prereq: RAD 0714. Fundamental training for physicists concerned primarily with radiation therapy.

0716. Physics of Diagnostic Radiology. Cr. 4.

Prereq: RAD 0502 or consent of instructor. The basic science of diagnostic radiology, primarily physics but including the necessary amount of electrical engineering of diagnostic circuitry and chemistry of diagnostic recording media.

0718. Physical Principles of Nuclear Medicine. Cr. 4.

Prereq: RAD 0502 or consent of instructor. The essential basic physics and mathematics, including statistics, of nuclear medicine.

0790. Directed Study in Radiological Science. Cr. 1-4 (Max. 12).

Prereq: written consent of instructor. Student conducts an investigative study, assisted and directed by a staff member.

0795. Seminar. Cr. 1-3 (Max. 3).

Prereq: consent of adviser. Required of all radiology majors. Presentations by graduate students, staff, visitors with emphasis on topics relevant to radiation biophysics and radiological health.

0799. Master's Essay Direction. Cr. 3 or 4.

Prereq: consent of adviser.

0890. Special Problems in Radiation Biophysics. Cr. 1-4 (Max. 4).

Prereq: consent of instructor, graduate officer. Independent study and research in advanced topics, to be selected by the student in consultation with the instructor.

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

Prereq: consent of adviser.



Division of Conjoint Teaching Services

Acting Director

Richard L. Wells, B.S.

Laboratory Supervisor

Henry L. Fetz, M.T. (ASCP)

This unit has as its prime function the coordination of the laboratory teaching functions of the curriculum which are centered in the multidiscipline laboratories of the Gordon H. Scott Hall of Basic Medical Sciences.

Division of Educational Services and Research

Director

Joseph W. Hess, Jr., M.D., M.Ed.

Educational Measurement

Michael B. Donnelly, Ph.D., Richard E. Gallagher, Ph.D., Martin J. Hogan, Ph.D.

Faculty and Curriculum Development

Thomas E. Burford, Ph.D., Theresa Cali, Ph.D., Frank Koen, Ph.D., Norval C. Scott, Ed.D.

Computer Applications

Barry L. Wolfe, B.S., Elliot Shevin, B.S.

Examination Services

Patricia Barrett, B.A.

The functions of the Division of Educational Services and Research are to conduct research and development programs in the various areas of medical education, and to provide service support for the educational activities of the School of Medicine.

The Division's major attention is directed toward (1) curricular and instructional materials development, (2) curricular and student evaluation, and (3) the development of the educational skills of the faculty. In carrying out its mission, the Division works with various faculty committees and academic departments of the Medical School as well as with individuals and groups of faculty members. Assistance is provided in the preparation, administration, and analysis of written examinations; the development of methods of assessing various dimensions of clinical performance and in analyzing and correlating student performance with other factors in the teaching-learning environment.

The Division provides assistance in the design and development of self-instructional materials as well as broader aspects of curriculum planning and implementation.

The Division periodically conducts programs for faculty which are designed to improve specific skills in planning, implementing, and evaluating instruction, to examine attitudes and beliefs about medical education, to open new channels of communication on educational matters, and to develop expertise in areas of special interest to individuals.

Graduate Academic Programs

Director: James M. Orten, Ph.D.

Advanced study beyond the baccalaureate degree is available in the School of Medicine for a limited number of students. The primary purpose is to provide an opportunity for graduate training in preparation for careers in teaching or research in the medical and health-related sciences. The graduate programs offered emphasize the latest, as well as the classical, theoretical and practical developments in the medical sciences. The faculty of the School of Medicine serves also on the graduate faculty to assure high quality instruction.

The graduate student enters a community of scholars where he is expected to become acquainted with the development of his main area of study and its relationship to other pursuits. He is asked to direct his mind toward self-development, to acquire useful perspectives on the meaning and limitations of exact science, and to maintain a balance between practicality and abstract intellectual activity. He is expected to draw from and add to the wealth of accumulated knowledge in his discipline. Each graduate student works closely with a faculty adviser who helps plan his course schedules and his research program.

MASTER OF SCIENCE

Programs leading to the Master of Science degree in the basic medical sciences and in several related clinical fields are offered under the jurisdiction of the School of Medicine. Majors are available in the following areas: anatomy, audiology, biochemistry, microbiology, occupational and environmental health, pathology, physiology and pharmacology, psychiatry, and radiology. Graduate courses available in these disciplines are listed by departments in the following pages. Forty-five credits are required for the master's degree in all fields except occupational and environmental health, which requires forty-eight. General requirements for the Master of Science degree are listed in the Graduate Division section of this bulletin.

DOCTOR OF PHILOSOPHY

Programs leading to the Doctor of Philosophy degree in the basic medical sciences are under the jurisdiction of the Graduate Division of the University. Majors are available in the following areas: anatomy, biochemistry, microbiology, and physiology and pharmacology. Graduate courses available in these disciplines are listed by departments in the following

pages. General requirements for the Doctor of Philosophy degree are stated in the Graduate Division section of this bulletin. Supplementary departmental requirements are given in separate brochures available from the individual departments.

COMBINED DOCTOR OF MEDICINE — DOCTOR OF PHILOSOPHY DEGREES

Purpose

The combined M.D.-Ph.D. program is designed to provide exceptionally talented medical students an opportunity to acquire knowledge and expertise in research in one of the basic medical sciences or other related disciplines. Such a program will prepare the student to assume investigative leadership in medical schools and in institutes for medical research. The usual medical curriculum seldom permits the medical student with an interest in academic medicine to acquire the basic information and training necessary for a competent research investigator. Such training should also increase his effectiveness as a teacher in a medical school. By combining and interrelating the programs, making graduate courses available during a student's medical education, the foregoing objectives can be accomplished more effectively and in a shorter time than is possible by two separate degree programs. The programs are reasonably flexible so that they can be adapted to best suit the student's discipline and needs.

Approved Programs

The combined M.D.-Ph.D. degree program is available in four basic medical science departments: anatomy, biochemistry, microbiology, and physiology. A similar program is being planned in pharmacology for the near future. Special arrangements also may be made for interdisciplinary studies between the School of Medicine and disciplines in other colleges.

Degree Requirements

The requirements for the combined M.D.-Ph.D. degrees conform with those established by the School of Medicine, the Division of Graduate Studies, and the individual departments involved. The applicant should have the baccalaureate degree.

A student who has shown outstanding academic excellence may be considered for the combined degree program when he has been admitted to the School of Medicine and has satisfied the requirements for admission into the Graduate Division. The latter are stated in detail in the Graduate Division section of this bulletin. The student should apply for admission to the program during his first year in Medical School but usually no later than the end of his second year. Admission to the combined M.D.-Ph.D. program *must* be approved by: the appropriate department of the Medical School; and the Deans of the School of Medicine and of the Graduate Division.

The applicant must complete not less than forty-five quarter credits in acceptable graduate level courses in his major (thirty credits) and minor-cognate areas and an acceptable research dissertation (an additional forty-five credits). Up to forty-five

credits may be transferred to his graduate program from his medical school course work, or from previous graduate studies, but *not* both. This transfer of credit is subject to approval by the department concerned and by the Graduate Division. The applicant must maintain a minimum B average in all graduate course work and a standing in the upper one-third of his medical class.

An advisory committee, appointed from members of the Graduate faculty of the School of Medicine by the Associate Dean for Academic Affairs and the Graduate Officer of the School of Medicine, monitors the combined degree programs, sets standards, and adjudicates any conflicts which may arise.

Typical Programs

Considerable flexibility is possible in the combined degree programs regarding the sequence of scheduling graduate and medical course work. For example, the applicant may start with the first two years of medical school, then complete two or three years of full-time graduate work, including his dissertation research, and finally complete his medical curriculum. A number of alternative sequences may be arranged. In any sequence, however, the distinctive requirements for each degree are clearly preserved. An average of six years, three years in the medical school and three years of graduate work, including summers, is usually required for the completion of the combined degree program.

During the first two years in Medical School in the typical sequence cited above, the applicant will be encouraged to spend summers and perhaps his elective time in graduate courses, seminars, and research to facilitate his selection of a suitable research topic and a research adviser. Similarly, during the years of concentrated graduate studies he will be encouraged to maintain contact with the clinical environment by participating in clinical rounds and conferences.

The applicant must prepare a tentative program at the time his graduate work is begun. The proposed program must be approved by the department concerned, the Dean of the School of Medicine, and the Dean of the Graduate Division.

At any point in the program, a student in good standing may transfer into either an M.D. program or a Ph.D. program alone, or into an M.S. degree program. Such a transfer *must* be approved by the chairman of the department involved, the Dean of the School of Medicine, and the Dean of the Graduate Division. Credits from the M.D. program may *not* be transferred to a master's program.

Financial Support

A limited number of assistantships, fellowships, and tuition scholarships are available for qualified students admitted to the various graduate programs.

Application

Application forms may be obtained from the applicant's specific area of interest or from the Graduate Office, Wayne State University School of Medicine.

More detailed information concerning the graduate programs listed above may be obtained from the department in the applicant's specific area of interest or from: Dr. James M. Orten, Director of Graduate Affairs, Wayne State University School of Medicine, 540 East Canfield, Detroit, Michigan 48201.

Graduate Medicine Program

INTERN AND RESIDENCY PROGRAMS

Director of Medical Education: Yvan J. Silva, M.D.,
FRCS (C), FACS

The Receiving Branch of Detroit General Hospital is the major teaching hospital for Wayne State University's School of Medicine, at both the graduate and postgraduate levels. Rotating, straight medical, and straight surgical internships are offered, and special emphasis is placed on desired elective rotations within the American Medical Association's guidelines on internship requirements. Regular intern orientation conferences and seminars are conducted, in addition to the teaching provided during rotations in the various departments.

Postgraduate residency programs are available in all the major disciplines in preparation for eligibility approval by the appropriate boards. Graduated teaching responsibilities are allotted to interns and residents within the realm of clinical diagnosis and patient care. Interns and residents contribute to the teaching of all medical students, who rotate through the various departments during their clinical years, with emphasis on the practicalities of the care and management of inpatients and outpatients.

Division of Medical Communication

Director

Morton B. Miller, M.A.

Staff

William J. Abele, Associate Director
Roy Anger, Medical Photographer
Marian Aste, Communications Technician
Antonia Babbish, Accounting Clerk
Joann Bechtold, Graphic Artist
Joyce Boles, Graphic Artist
Tom Cartmell, Media Director
Ken Christopherson, Medical Photographer
Leonard Deneweth, Graphic Artist
Gary Dykstra, Graphic Artist
Susan Hurst, Learning Resources Librarian
Julie Kmetz, Coordinator, Medical Photography
Sandra Kravetz, Divisional Secretary
William E. Loechel, Medical Illustrator

Daniel J. Moore, Media Resources Supervisor
Peter Muller, Communications Technician
Janet Ozimkiewicz, Learning Resources Librarian
Nick Spanos, Medical Photographer
Helen Szpakowski, Graphic Design Supervisor
Edward W. Wales, Cinematographer
Bill Whittington, Electronics Technician
Dan Wohlgemuth, Communications Technician
Robert Wright, Chief Medical Photographer

The Division of Medical Communication is responsible for the production and utilization of effective and innovative instructional technology in the teaching program. It consists of six units: medical photography, medical illustration, graphic design, cinematography, television and media resources, which combine to provide a multitude of services for the students and faculty.

The Medical Communication Division works closely with the Division of Educational Services and Research in designing, producing and disseminating teaching materials that fit into the Medical School's curriculum.

The Medical Photography unit routinely handles photographs (black and white, and color) of the following: patients before, during and after treatment; gross anatomical specimens; copying of charts, graphs and other illustrated material for publication and to be made into projection slides for teaching and medical meetings; copying of x-rays for teaching and publication; photographs of research equipment, methods and results; operation room procedures, photomicrography of tissue slides and public relations photos.

Cinematography is equipped to produce professional 16mm motion picture presentations. The Super-8 format, produced in film cartridges, is used for self-instruction projects. Film editing, viewing, cleaning and inspecting facilities are available for films produced here or elsewhere.

The Medical Illustration unit provides highly professional anatomical drawings, surgical and gross specimen renderings for research, publication and instructional projects.

The Graphic Design unit is responsible for an impressive variety of art work, which includes: exhibits, publications, illustrative material for motion picture films, television video tapes and slide/sound self-instruction modules, and graphs, charts, signs and posters.

The Television unit provides live or video-taped color and black and white productions using the ¾-inch Sony cassette format. Television demonstrations can be played back via the large screen color television projector in the lecture halls, through the multidisciplinary laboratory TV distribution system, or on a "remote" basis anywhere in Scott Hall or the Medical Center complex.

The Media Resources unit plays a significant role in the teaching program at Scott Hall. They are responsible for the operation of all audio-visual equipment in the three lecture halls, the M-D labs, the study carrels and the various conference and meeting rooms. Two fully equipped media resource centers are supervised by this unit. All first and second year lectures are audiotaped and made available to students

in the centers. A complete line of audio-visual equipment is also available for medical school faculty members for temporary or permanent loan. Communication technicians support the audio-visual needs of the medical campus and the Harper Hospital auditorium.

Postgraduate Medicine and Continuing Medical Education

Director: William L. Simpson, Ph.D., M.D.

The Postgraduate and Continuing Medical Education Program of the Wayne State University School of Medicine has been under study for the past three years and is now being redesigned to make more effective use of the medical faculty in offering courses and programs to staff members of teaching hospitals, both in the Medical Center and throughout the State of Michigan, and in the continuing education of physicians in practice.

The Division works in close cooperation with the postgraduate and continuing medical education activities of the other three schools of medicine in Michigan, and has joined them in recommending that a statewide consortium for continuing medical education be established to work primarily with and through area health education centers to provide educational opportunities for physicians close to their homes and places of practice.

Spread through the academic year, clinical departments will offer ten symposia or workshops, each lasting from one to three days. Many of these are well known and attended by many physicians practicing in related specialties. These include the Harold C. Mack Symposium in Gynecology/Obstetrics; the Annual Trauma Symposium in Surgery; the Thyroid Workshop in Internal Medicine; the Annual Cancer Symposium in Oncology; and courses in rheumatology presented by the Rheumatology Division of the Department of Medicine; and Industrial Toxicology, a recurring five-day course presented by the Department of Occupational and Environmental Health. Several seminars presented by the Psychiatry Department on a weekly basis from November through April have high acceptance by practicing physicians, especially in family practice and general practice.

During the 1973-74 year increasing attention was devoted to development of courses that are of a special interest to primary physicians, such as orthopedics in family practice, genetic defects and counselling, and dermatology. Moreover, a five-day review course in family medicine was planned, to be held in September 1974. A review course in internal medicine was available in Scott Hall one evening a week from January through the first week in June 1974.

Many other basic courses and symposia have been continued and are announced annually in the fall by means of a Bulletin of Continuing Medical Education Courses. These include the Annual Blood Symposium, review courses in anatomy, plus courses in pathology, immunology, radiological physics, elec-

tron microscopy, forensic pathology and jurisprudence, and comparative pathology of laboratory animals. With increasing pressures on practicing physicians to maintain and update their professional knowledge and skills, Wayne State University recognizes that it should respond to the needs perceived by physicians especially in southeast Michigan for continuing medical education. Inquiries may be directed to the Division about specific programs in which individual physicians or groups of physicians are interested.

Shiffman Medical Library

Medical Librarian

James F. Williams II

Staff

Marie Blum, Serials Librarian
Catherine Carter, Interlibrary Loan Librarian
Helen Dimanin, Data Coordinator, KOMRMLP
Anaclare Evans, Cataloger
David Hulkonen, Reference Librarian
Mary E. McNamara, Associate Medical Librarian
Elizabeth Jean Monroe, Assistant Director, Kentucky, Ohio, Michigan, Regional Medical Library Program
Penny Oswant, Circulation Assistant
Kathleen Slotman, Circulation Librarian
Ruth Taylor, Acquisitions Librarian
Faith Van Toll, Consortium Coordinator, KOMRMLP

The School of Medicine Library is located in the Vera Parshall Shiffman Medical Library building. The structure houses University Library's medical collections consisting of some 115,000 volumes — the major biomedical collection in the area.

Besides the usual circulation and reference services to the Medical School personnel, the library services other institutions through interlibrary loan; these requests number more than 20,000 per year.

To aid community health care and health sciences education, the library cooperates with other institutions to study present information services in order to establish a suitable library network for the metropolitan Detroit area. The results appear in a continuing Report Series published by the School of Medicine Library and Biomedical Information Center.

In addition, the Shiffman Medical Library houses the Central Office of the Kentucky, Ohio, Michigan Regional Medical Library Program, an organization composed of the ten medical and dental schools of the three-state region supported in part by federal funds. The Regional Medical Library's function is to provide access to the library resources throughout the region to all qualified users.

Division of University Relations

Associate Director

Robert N. Hillcoat, M.A.

Staff

Donald R. Burkholder, Ph.D., Mildred C. Fox, B.A., Jean N. Hammerl, B.A.

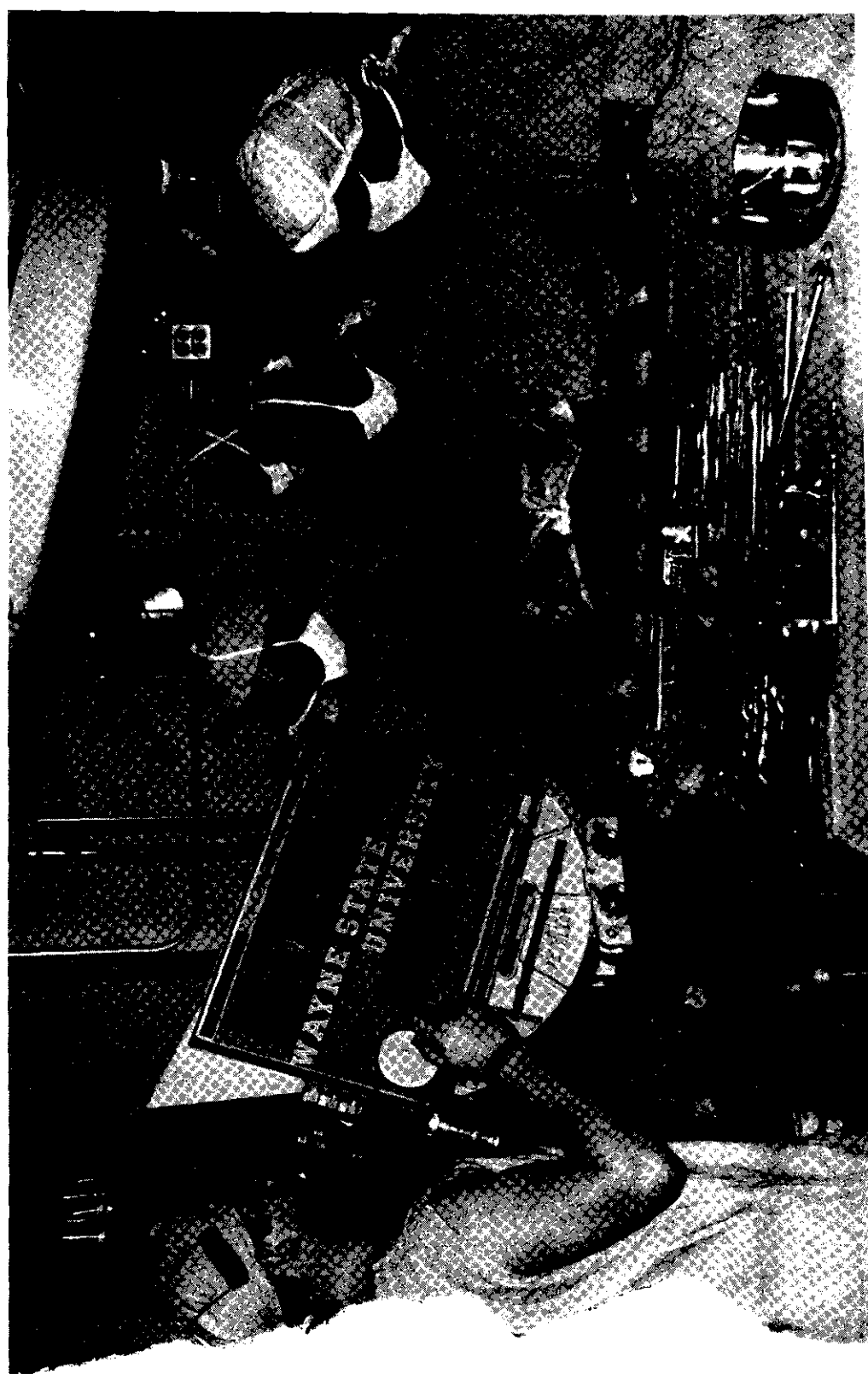
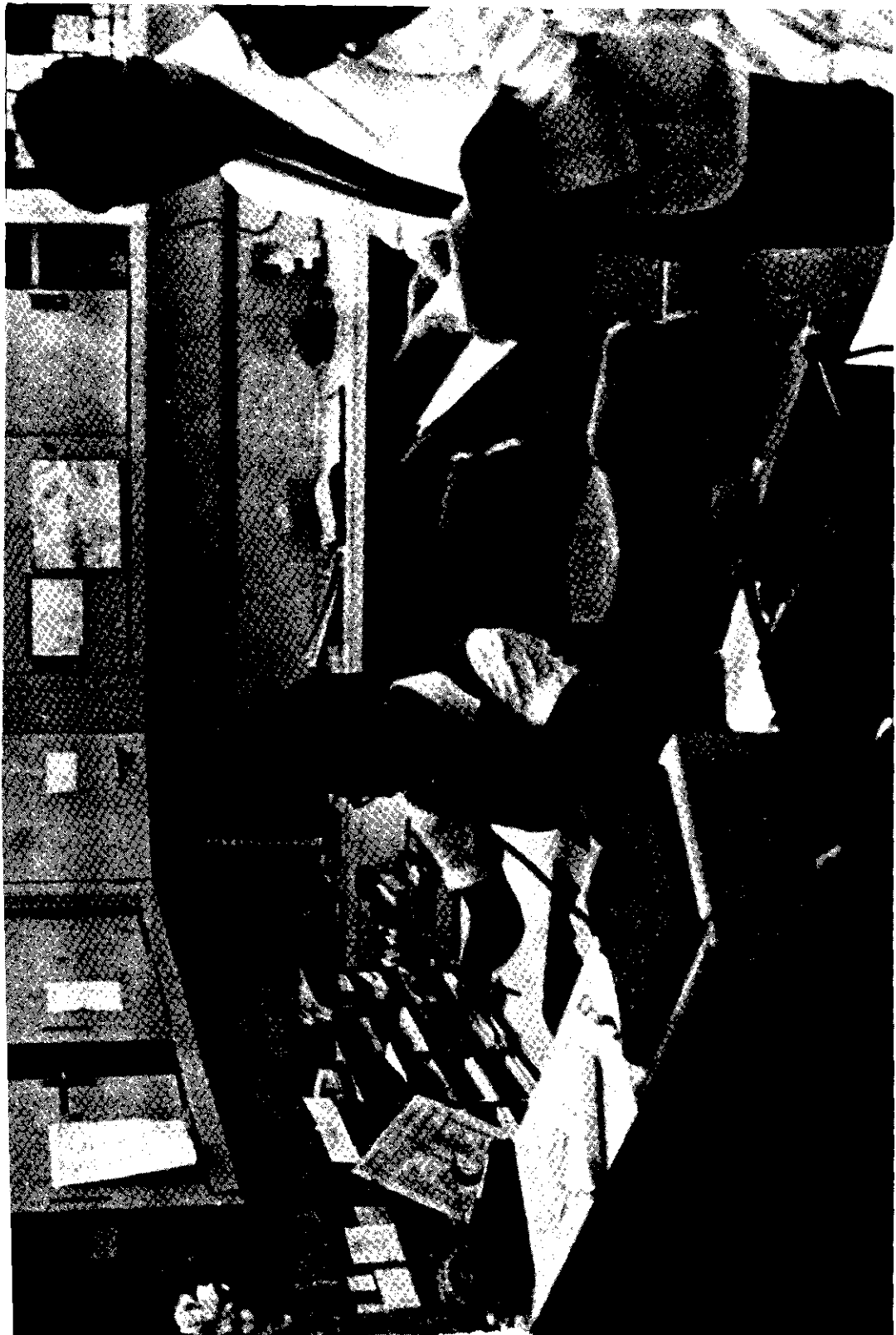
The Division of University Relations of the School of Medicine is responsible for four major functions of the School of Medicine: publications, media relations, alumni relations, and development.

Publications include the *Alumni Report*, a quarterly magazine for alumni, faculty, staff and friends; *Medical School News*, a bi-weekly newsletter; an admissions information brochure; *Medical Education Notes*; and various other printed materials.

Media Relations: The Division publicizes newsworthy events and features involving appointments and personal achievement of faculty, staff and alumni. Features are prepared for use by the print media and for radio and television broadcast to help educate the public to the types of services and the goals of the School of Medicine and the Detroit Medical Center. The Division also coordinates educational tours of the medical school.

Alumni Relations: Each year the W.S.U. Medical Alumni Association conducts a Clinic Day and Alumni Reunion consisting of scientific discussions by leading scientists, and an awards program to recognize distinguished alumni and faculty. The Association provides scholarships which are awarded at Commencement. One or more out-of-the-country postgraduate seminars are conducted each year, in addition to the School's sponsorship of reunions at several medical specialty conventions around the country. Alumni and former residents (over 5,500) and their wives are encouraged to maintain close ties with the School, either by active participation in alumni affairs, by exchanging news notes with their class agents, or by attending and participating in various School functions. The Division carries out the decisions and plans made by the W.S.U. Medical Alumni Board of Governors.

Development: The Division conducts a yearly campaign for the W.S.U. Medical School Annual Fund. Now in its fifth year, the Fund's income provides scholarships, loans, financing for research projects, campus beautification and other programs which are not regularly funded by State or other governmental agencies. The Appropriations Committee of the Medical School Annual Fund disburses undesignated gifts received by the School of Medicine. The Division actively seeks both small and large gifts and gifts from private corporations to further advance the goals and purposes of the medical school.





Monteith College

THE COLLEGE

Monteith College is the first public interdisciplinary college in a major American university. It was established in 1959 to provide a coherent general education leading to a bachelor's degree for any interested undergraduate who gains admission to Wayne.

The basic aim of the Monteith program of general education is to provide its recipients with the ability to understand themselves and their environment, the command of sufficient information upon which to predicate sound and ethical decisions, the sophistication to comprehend the consequences of their actions and beliefs, the perception to cope with human knowledge and affairs, and the integrity to live humanely and act wisely. To this end, Monteith essentially offers three basic sequences of courses treating the large ideas and developments of mankind in arts and literature, natural science, and social science. Each course is taught by a team of professors representing several disciplines and approaches. The ideas and developments are presented by means of lecture, concert, drama, film and field experience and are explored with care by students and faculty in small discussion groups, beginning

in the freshman year. Faculty members are also available to guide individual tutorial studies selected by the student to meet his own interests. Seminars on special topics are optional, and students may initiate and conduct new courses of their own under faculty supervision.

The core curriculum in Monteith takes about one half of the student's time, leaving the rest free for electives and/or a major or concentration in business administration, education, engineering, law, pre-medicine, nursing, social work, or any of the twenty-five departments in the College of Liberal Arts.

Within Monteith there are special programs for Spanish-speaking students — especially Mexican-Americans and Puerto Ricans, and for older adults who wish to obtain a broad, general education and earn a college degree through day or evening classes.

Any person admitted to the University may choose the Monteith program. Tuition in Monteith is the same as that in other undergraduate colleges of the University, and all credits are transferable. The College offers the Bachelor of Arts and Bachelor of Philosophy degrees.

The Monteith Basic Courses Integrated Into A Student's Four-Year Program Under the Quarter System

Freshman Year			Sophomore Year			Junior Year			Senior Year		
Quarters			Quarters			Quarters			Quarters		
1	2	3	4	5	6	7	8	9	10	11	12
NATURAL SCIENCE			SCIENCE OF SOCIETY			HUMANISTIC STUDIES			SENIOR GROUP REQUIREMENT*		
Fresh. Sem.	HUMANISTIC STUDIES		HUMANISTIC STUDIES			HUMANISTIC STUDIES			SENIOR GROUP REQUIREMENT*		

* Candidates for degrees from Monteith College only.

PROGRAMS OF STUDY

Monteith is designed to serve two kinds of students: those who wish to take a degree in general education without any particular major; and those who wish to combine general education with specialized studies or with preparation for a profession. Both groups of students follow curricula which have this in common: they include the basic course sequences of the Monteith program, taken in a definite order.

The diagram on the page opposite illustrates the place of the basic course sequences for most Monteith students. The sequence in Natural Science comprises twenty-four credits (six four-credit courses); that in Science of Society, twenty to twenty-one credits; Humanistic Studies, twenty credits; Freshman Seminar, one credit required in the first quarter, with one optional in the second. The Senior Group Requirement (see p. 438) is for twenty credits. Hence, for a Monteith degree eighty-five to eighty-six credits are to be earned in required courses, leaving ninety-five credits (out of the 180 required for a bachelor's degree) available for electives, special studies, professional studies, or more intensive work in general education. (The program for students of engineering is an exception explained below.)

Students not entering during the fall quarter should expect some adjustments in the sequence in which they will take these courses. Every student, in consultation with a Monteith adviser, may develop an individual program built upon the required Monteith courses and incorporating whatever other courses are needed to complete his or her undergraduate objectives.

Early planning is strongly advised. All members of the staff are readily available to discuss with students their plans, questions and aspirations. The Monteith advisers are especially competent in identifying the opportunities and requirements of virtually every field of study and in helping students with the detailed planning of their schedules.

For the exceptionally well-qualified transfer student, Monteith College offers an advanced undergraduate program in the junior and senior years. It is designed both for the student who does not wish to elect a concentration and for the student who wishes to combine interdisciplinary education on the advanced level with pre-professional courses or with a traditional major. Developments and relationships among diverse disciplines, ideas, themes, issues and problems are explored in their historical context under the direction of senior professors. Emphasis is placed on understanding the various realms inhabited by modern man — political, economic, scientific, aesthetic, literary, religious — as these impinge on one another and as they emanate from historical conditions. The student will be helped to refine some generally useful skills of criticism, communication, and methods of investigation.

Applications for admission into this program are encouraged from exceptional students who have earned a "B" average in sixty semester credit hours (or ninety quarter credit hours) of transferable college-level courses at an accredited two-year or four-year college or university. Applicants must take a

qualifying examination, the results of which will also be used for diagnostic purposes in an admission counseling interview.

With respect to other schools and colleges in the University, curricular opportunities for Monteith students include the following:

BUSINESS ADMINISTRATION

Students who wish to concentrate in business are advised to take certain courses in speech, mathematics, economics, management, accounting, and computer science during their first two years and then to apply for admission to the School of Business Administration during the third quarter of their sophomore year. It is possible to complete all the Monteith requirements and fulfill the requirements of a major within the School of Business Administration. Business students may also be interested in a new interdisciplinary program described under "Engineering," below, which is scheduled to be offered beginning in 1974-75.

EDUCATION

Students who wish to prepare themselves for professions in the field of education have two options: they may take the combined curriculum in Monteith and education, leading to a bachelor's degree from Monteith and a Michigan Provisional Certificate for either elementary or secondary school teaching of academic subjects, or they may transfer to the College of Education at the beginning of the junior year and take a degree from that college with a Michigan Provisional Certificate. Either way, the Monteith curriculum may be completed. The second option offers more opportunity for additional courses in the field of education.

LIBRARY SCIENCE

Positions in public, special, college and university libraries call for a broad undergraduate education.¹ The Monteith basic courses taken in conjunction with others selected through consultation with an adviser should assist the student interested in library work to gain the necessary breadth of education. It is recommended that the student elect at least one year of a modern foreign language, Computer Science 0201 (Introduction to Computer Science), History 0110, 0120, 0130 (The World and the West), Library Science 5497 (Introduction to Librarianship), Library Science 5495 (General Reference Service), and Library Science 6494 (Technical Services in Libraries). The library science courses are open only to junior and senior students.

Preparation for professional positions in libraries consists of a graduate course of study which leads to the degree of Master of Science in Library Science. This program is offered by the Library Science Division, College of Education; see page 76.

¹For the requirements for school library positions, see the College of Education section of this bulletin or consult with the Library Science Division.

ENGINEERING

Freshmen registered in the College of Engineering are required to complete a year-long sequence of courses for twelve credits in a new general education program designed specifically for engineering students. The program will be given by a team of Monteith and Engineering professors experimentally for three years as an integral part of the student's professional training at the freshman level. Its goal is to develop, in conjunction with the technical program of the College of Engineering, engineers who are not only technically proficient, but resilient in the face of changing conditions, sensitive to human values, conscious of the social implications of their work and aware of their responsibility both as private individuals and as professionals to serve the interests and welfare of mankind. The program is designed not only to develop values, consciousness and a sense of moral and social responsibility, but also to provide students with the kind of historical perspective and understanding necessary to bring these values to fruition in the course of their professional activity.

The course sequence, called *The Impact of Technology*, begins with a study of contemporary problems of society and technology viewed from the standpoint of a variety of disciplines. It then explores the background of these problems in the Age of the Industrial Revolution, considering its scientific, social, political, economic, aesthetic, and literary ramifications.

Transfer students may elect to take all three courses in this sequence but only if they do so *in toto*. For the rest of the socio-humanistic requirements of the College of Engineering, see p. 128.

LAW

The Monteith curriculum, either with or without a concentration in a special subject, is suitable for pre-law students. For admission to the Law School of Wayne State University or to that of most other universities one must have a bachelor's degree from an accredited college with a strong honor point average and an above-average score on the Law School Admission Test. Applicants are urged to take the test at least eight months before the opening of the term for which admission is sought. Information concerning the time and place of the examinations may be obtained from one of the Monteith advisers. Some law schools have special entrance requirements, and the applicant should inform himself of them.

In 1972-73 a new combined program sponsored by Monteith and the Wayne Law School for Monteith undergraduates was begun. This program leads first to a bachelor's degree and, with further study, to a law degree. It permits ten undergraduates each year to begin the study of law during their sophomore year and to complete the first year of law school by the end of their undergraduate careers as part of their baccalaureate programs. Then, if admitted to the Law School as post-baccalaureate students, they will spend one of the three years required for the J.D. degree in related disciplines and in more intensive study of law than would ordinarily be possible for students in the normal law degree program.

This arrangement permits a continuing reflection on the inter-relationship between law and the humanities for seven years. It should be emphasized that it is not meant to be a device for fostering earlier specialization on the part of law students. On the contrary, it is primarily designed to allow students to pursue over a course of years a program of study in which legal work is systematically enriched by simultaneous work in such fields as philosophy, psychology, sociology, history, political science, and economics. It should also have the benefit of bringing able undergraduates into sustained contact with the Law School, and of bringing the Law School, through them, into relation with their academic pursuits elsewhere in the University. As such, the program can be viewed as a significant step toward the teaching of law as an undergraduate subject.

LIBERAL ARTS

The following concentrations are available to Monteith students. They may be pursued singly or in combination with one another and may be initiated as early as the freshman year. The student may complete the requirements of a major in any of these fields by remaining in Monteith or by transferring to the College of Liberal Arts.

Anthropology	Italian
Anthropology and Sociology	Journalism
Arabic	Latin
Art	Mathematics
Art History	Music
Biology	Near Eastern Languages and Literatures
Chemistry	Near Eastern Studies
Classical Civilization	Philosophy
Classics	Physics
Economics	Polish
English	Political Science
Family and Consumer Resources	Psychology
French	Radio, TV and Film
Geography	Russian
Geology	Slavic Languages and Literatures
German	Sociology
Greek	Spanish
Hebrew	Speech
History	Theatre
Humanities	

BLACK STUDIES

In conjunction with the majors available in Liberal Arts and in some of the professional schools, it is also possible for the student to develop a co-major in Black Studies. Certain courses throughout the University have been identified as appropriate for this co-major, including the integrating seminars sponsored by the Center for Black Studies in cooperation with Monteith (see *Afro-American Experience*, p. 439). Monteith students who take this option graduate with a double major — one in Black Studies and one in a special field.

MEDICINE

The Monteith student planning to enter Wayne State University School of Medicine must have a bachelor's degree for entrance and, in addition to completing the Monteith requirements, he must also earn, with a grade of C or better, twelve credits in general physics with laboratory, twelve credits in organic and twelve in inorganic chemistry with laboratory, and eighteen credits in general biology or zoology with laboratory, including a course in genetics.

A student planning to apply for admission to a different school of medicine is advised to correspond directly with that school concerning its specific entrance requirements. The *Admission Requirements of American Medical Colleges* may be referred to in the Adviser's Office.

ALLIED HEALTH

For Monteith students who wish to enter any of the several health-related fields taught in the College of Pharmacy and Allied Health Professions, undergraduate programs leading to a bachelor's degree from that college can be arranged. Normally, the student will transfer to the College of Pharmacy and Allied Health Professions at the beginning of the junior year and at the same time, he may elect to complete the Monteith requirements. Planning should begin in the freshman year.

NURSING

Monteith students who wish to study in the College of Nursing must earn a grade of C or better in Chemistry 0102, 0103, and 0104; Biology 0103 and 0220; and Psychology 0198; and pass the Mathematics Qualifying Exams or earn a grade of S in Mathematics 0090 by the end of the spring quarter prior to the fall quarter for which application to the College of Nursing is submitted. Ordinarily, one applies for admission to Nursing at the end of the sophomore year.

SOCIAL WORK

The School of Social Work grants a Bachelor of Social Work degree upon successful completion of forty-five credits in prescribed courses in social work in addition to the eighty-five credits required in Monteith; this leaves fifty credits for electives in other fields. The prescribed undergraduate courses leading to the Bachelor of Social Work degree were developed through a pilot project co-sponsored by Monteith College and the School of Social Work. See pages 515-516.

PRE-PROFESSIONAL ADMISSION

Admission to a pre-professional curriculum implies only that a student has chosen a professional goal. It does not guarantee that the student will be accepted to the corresponding professional school of his choice.

The study of foreign languages is recommended for all students desiring a general education. Since nearly every graduate program has a foreign language requirement, students preparing for graduate school are urged to achieve fluency in at least one foreign language.

To be eligible for admission into Phi Beta Kappa (see p. 445) a student must have a major field of study. Further information about Phi Beta Kappa is available from the Advisers' Office.

In all the foregoing curricular arrangements with professional schools and colleges, two major principles guide us: first, that it is pedagogically wrong to preclude an interested, capable student from professional studies simply on the ground that he has not accumulated 180 undergraduate credits. Educators must be sensitive to the periods of high motivation among their students and enable them to move into appropriate studies when their desire is strongest. Second, we recognize a complementarity between general and professional education. Far from being antithetical to professional studies, general studies provide context in which professional studies have meaning. The latter, in turn, will commonly raise larger issues and lead the alert student into new and fruitful paths of inquiry. Indeed, this ordering of liberal studies to professional studies has been an abiding feature of the great European universities from the Thirteenth Century down to certain unfortunate aberrations in modern times.

MONTEITH COURSES

BASIC COURSES

The heart of the Monteith program for entering freshmen is the basic courses, given in three sequences — Natural Science, Science of Society, and Humanistic Studies — and described in the following pages. Each sequence should be thought of as a single course extending over several quarters; students are examined and graded on each quarter's work. Although there are some exceptions, each course normally meets four hours a week — twice in large sections for lectures and twice in small discussion groups. The lectures are taped for the benefit of students who want to review them.

Ordinarily, a freshman begins the Monteith program in the fall quarter with Natural Science 0121, Science of Society 0131, the Freshman Seminar (Interdivisional 0190), and an elective. In the winter quarter he continues the natural science and social science sequences and begins the third sequence with Humanistic Studies 0231. The scheduling of the rest of the sequences is shown on the chart on p. 434.

FRESHMAN SEMINAR

Required for one credit in the first quarter in Monteith and optional for one credit in a subsequent quarter are seminars conducted for freshmen by Monteith upperclassmen under faculty supervision. They have the function of introducing new students to the College and the University, enabling them to recognize possibilities, use well the resources, and participate fully in the life of the University. Freshman seminars are also designed to stimulate reflection on educational experiences and needs and provide a formal structure through which the identification of educational needs can affect the programs of the College. As such, they assist the faculty in its continuous evaluation of the first-year experience of Monteith students. They also provide upperclassmen with the opportunity to reflect on their own experience and to work closely with faculty and freshmen in applying that experience in a teaching situation. Upperclassmen chosen for the Freshman Seminar staff earn credit for this work through the Senior Colloquium (see below).

UPPER DIVISION COURSES

for Advanced Transfer Students

Students admitted to the Monteith Program for Advanced Transfer Students will take two sequences of courses in their junior year and one in their senior year. Each sequence is comprised of three four-credit courses. In addition to these thirty-six credits, each student must earn nine credits in electives from Monteith. The other half of the junior and senior years is free for majoring in a traditional discipline in the College of Liberal Arts, for following a pre-professional curriculum in one of Wayne's professional schools, or for an interdisciplinary program in Monteith.

The required sequences for transfer students are designed to give first-hand knowledge of a broad range of key documents in a multi-disciplinary setting; to develop a critical understanding of the nature and uses of the past; and to provide the critical skills and vocabulary for understanding the main theoretical structures and strategies of explanation characteristic of a wide variety of disciplines.

TUTORIAL STUDIES

Students wishing to pursue a particular interest under the guidance of an instructor may sign up for a tutorial carrying from one to ten credits, depending on the plan of work. This type of study is designed to allow the student to deepen her knowledge of a particular area or to explore systematically a broad span of interest. It may entail extensive reading, research, writing, or field experience. It affords opportunity to design one's own project and to pursue it with a large measure of independence.

OTHER SEMINARS

Various seminars are offered by the faculty from time to time in areas of current interest to them. Students are invited to work with one or more of these faculty members in an apprentice relation, contributing what they can to the clarification of thought and experience on the topic through study and dialogue.

COOPERATIVE SELF-EDUCATION SEMINARS

This program, developed by students in 1963, allows Monteith students to plan an academic course and offer it to their fellow students. Any student, or several students working together, may develop a plan of course work and evaluation in any area or approach not already provided by a scheduled course of the College or University. The student(s) may earn credit by teaching the course, provided: (1) a faculty member agrees to act as sponsor; that is, to work with the students in any way needed to ensure the success of the course and to act as co-teacher in deciding course grades; (2) the College is able to offer and the student leaders are able to take, concurrently with the student course, a Learning Process Seminar; and (3) a sufficient number of students enroll in the course to provide a functional teaching and learning situation. Interested students should obtain from the Advisers' Office a copy of the document "Current Guidelines to Cooperative Self-Education."

SENIOR GROUP REQUIREMENT

Every student, except students in the Monteith Program for Advanced Transfer Students, seeking a degree from Monteith must complete the *Senior Group Requirement*. This may be satisfied by taking any of the following for a total of at least twenty credits: Senior Colloquium (four or eight credits); Senior Essay (four, eight, or twelve credits); Modes of Thought (four, eight, or twelve credits); or Third World and Women Studies (four, eight, or twelve credits).

A **Senior Colloquium** is a small group of students who come together to study and discuss a matter of common interest. Every group is responsible for selecting its faculty sponsor, but the major responsibilities rest on the students themselves: defining the topic, making contributions to the group, keeping a log or journal, and writing a reflective paper of substantial length related to material explored during the course of the Colloquium.

A **Senior Essay** is the product of considerable and prolonged independent work by an individual person guided by a faculty member of one's choice. It can take the form of an essay, a report, or a creative verbal, graphic, or musical work. In length and substance it is more than a term paper for a course but less than a master's thesis. It should bring the best abilities and energies of the student to bear in a sustained way upon some project of personal value and significance. Students are advised to consult quite carefully with a chosen faculty member before embarking upon a Senior Essay. Senior Essays produced over the past several years may be examined in the office of the Executive Secretary. A Senior Essay Handbook is available in the Advisers' Office.

Modes of Thought is a sequence of three courses beginning in the fall quarter and designed to suggest possible syntheses in the history of ideas and to present interrelated themes and problems not previously treated in the basic sequences. It consists in a series of lectures supplemented by annotated bibliographies and suggested readings and other materials. In addition, there is opportunity for small group discussion to continue the exploration and application of the course content.

Third World and Women Studies is a sequence of three courses beginning in the fall quarter and designed to explore the experiences of blacks, Boricuas, Chicanos, Asian-Americans, native Americans, certain white ethnic minorities and women through autobiography, biography, history, theoretical studies and field work. The courses are concerned mainly with the theme of domination and oppression — psychologically, culturally, economically, politically.

CHICANO-BORICUA STUDIES PROGRAM

Since 1971-72, special efforts have been made to recruit Mexican-American and Puerto Rican students from the Detroit area into Monteith and to provide needed supportive services — financial aid, career counseling, tutorial services, and, most importantly, the mutual support of an authentic student community. A Latino staff in Monteith conducts the program and offers a number of elective courses (see Interdivisional Courses below). A central aim of the program is to prevent any severance of the psychological and spiritual bonds between the student and the community. The program is based on our conviction that a good general education must also help the student come to grips with the social, cultural, political, and economic realities of his people. Students in this program generally take a number of electives in Chicano-Boricua Studies in addition to the full range of Monteith basic courses.

LABOR SCHOOL GRADUATES PROGRAM

Another distinctive set of students in Monteith are the adults who have completed the non-credit program of the Labor School, administered by the Institute for Labor and Industrial Relations on the Wayne central campus. These students are generally between twenty-five and sixty-five years of age; they are members of the organized labor movement, most of them working to support families; racially integrated and about evenly divided between men and women. Since at least two thirds of this student population are able to take evening courses only, the College has established special sections of its basic courses in the evenings. Essentially, these are the same courses as those taken by all other Monteith students, but there are some modifications in the lectures, assignments, and content of discussions which naturally flow from the richness of experience which Labor School graduates bring to the classroom. In connection with this program a new sequence of three courses on the subject of the labor movement is offered as electives (see Interdivisional Courses below).

AFRO-AMERICAN EXPERIENCE SEMINARS

In 1968 special courses were developed in Monteith to help members of all races understand better the social experience, cultural developments, problems and perspectives of black people in the United States. Today this sequence of three courses is taught by a team of blacks and whites who bring both scholarly and practical competence to bear upon the subject. Several of the staff members are visiting lecturers who hold joint appointments in the Center for Black Studies. The first course in the sequence uses mainly a social science approach; the second involves humanities. All three courses may be taken as integrating seminars by students taking a co-major in Black Studies.

WRITING

Rather than require of its students the traditional one year of English composition, Monteith College has made the teaching of clear, accurate, coherent, persuasive English prose an integral part of the instructor's responsibility in each of the basic courses. Students' written assignments are carefully evaluated on the basis of form as well as content. Limitation of the size of class sections makes it possible for instructors to give individual attention to each student's writing.

Since a Monteith student normally acquires a proficiency in English equivalent to that attained by one who has completed nine credits in English composition, official recognition of this is noted as non-degree credit on her academic transcript.

ADMISSION TO MONTEITH COURSES

All elective courses offered by Monteith College are open to students of other colleges of the University, but the consent of the Dean is required before these students may enroll in basic courses. Such students electing courses in Monteith should ascertain the type of credit applicable toward degrees in the colleges in which they are enrolled.

COURSES OF INSTRUCTION¹

Humanistic Studies (H S)

Basic Courses

0231. Experiencing the Arts I. Cr. 4.

Available only to students of Monteith College; exceptions require the consent of the Dean. In combination with Humanistic Studies 0331, the course is designed so students can widely explore and participate in the arts: exhibits and performances presented in the classroom by students, faculty and visiting artists; critical discussions; workshops planned for non-majors in the arts and crafts.

0331. Experiencing the Arts II. Cr. 4.

Prereq: H S 0231. Continuation of Humanistic Studies 0231.

0332. Continuity and Change. Cr. 4.

Prereq: H S 0231, 0331. A study of the way in which the past and present intersect. Emphasis will be placed on the dynamics of historical change and the extent to which problems and possibilities bequeathed by a particular heritage determine the activity of artist and thinker.

0333. The Persistence of Tradition. Cr. 4.

Prereq: H S 0231, 0331, 0332. Selected studies dealing with the recurrence and transformation of theme, symbol, and genre as man reinterprets his own image.

0334. Contemporary Man and the Arts. Cr. 4.

Prereq: H S 0231, 0331, 0332, 0333. Attention centered on contemporary issues; their roots in the past as well as their uniquely twentieth century character.

Other Courses

0290. Tutorial Studies. Cr. 1-10 (Max. 30).

Prereq: consent of division chairman. Guided individual studies. Credit adjusted to scope of project.

0340. East and West: A Comparison of Art Forms. Cr. 4.

Prereq: H S 0231 or consent of instructor. Comparison of artistic expression in the two great traditions: Orient and Occident. Selected masterpieces as models for discussion of basic distinction and similarities.

0342. Literature and Art Since 1945. Cr. 4.

Prereq: H S 0231 or consent of instructor. Emphasis on American paintings and French plays considered in their relationship to surrealism and existentialism.

0344. Life Style and Art Style of the Enlightenment. Cr. 4.

Prereq: H S 0331 or consent of instructor. The interaction between the social realities of the eighteenth century and the ideal theories of culture in France, England, Germany and Russia.

0346. Art and Philosophy of Symbolism. Cr. 4.

Prereq: H S 0231 or consent of instructor. The writings of Whitehead, Cassirer, and Langer; their relevance to aesthetics and to criticism of individual works of art.

0347. Art as Propaganda in the Modern World. Cr. 4.

Prereq: H S 0231 or consent of instructor. Examination of how the propaganda value of the arts has been exploited by several modern social and political movements. Selected literary, artistic, and musical works associated with the Enlightenment, the French Revolution, the Industrial Revolution, and contemporary Russia as the focal point.

0397. Seminars in Humanistic Studies. Cr. 1-10 (Max. 32).

May be repeated for credit. Prereq: consent of division chairman. Several different offerings may be made each quarter. More than one section may be taken for credit simultaneously.

0399. Seminar: Cooperative Self-Education. Cr. 2-4 (Max. 16).

Prereq: consent of division chairman or delegate. Venture in cooperative self-education, subject to the current guidelines of the College for such an enterprise, on file in the Dean's office and summarized in the Monteith College catalog.

0481. Senior Essay. Cr. 4.

Prereq: H S 0334 or consent of instructor, and senior standing; exceptions require consent of the Dean. Preparation for the writing of a substantial essay on some subject of intellectual interest. Essentially independent work, though carried on under the guidance of an adviser. No class meetings.

0482. Senior Essay. Cr. 4.

Prereq: H S 0481. Continuation of Humanistic Studies essay preparation.

0483. Senior Essay. Cr. 4.

Prereq: H S 0482. Culmination of Humanistic Studies essay.

Natural Science (N S)

Basic Courses

0121. The Rise of Scientific Thought. Cr. 4.

Available only to students of Monteith College; exceptions require the consent of the Dean. Historical development of concepts relating to matter in motion from Aristotle to Newton; astronomical cosmologies from antiquity through the Copernican Revolution; the nature of science as an evolving empirically based process rooted philosophically and culturally in its own historical past.

0122. The Emergence of Modern Science. Cr. 4.

Prereq: NS 0121 or former 0131. Science after Newton, corpuscular and wave theories of light, growth of atomic theory in chemistry, development of field concepts in electricity and magnetism, electromagnetic theory of light, photo-electric effect and the wave-particle duality, fundamental conflict between Maxwell's electrodynamics and Newtonian mechanics, unification of electrodynamics, mechanics and gravitation in Einstein's special and general theories of relativity.

0123. The Evolutionary Hypothesis. Cr. 4.

Available only to students of Monteith College; exceptions require the consent of the Dean. The historical background of Darwinism; the evidence for organic evolution, and the influence of the theory of evolution on other disciplines; mechanisms of evolution and heredity; the synthetic theory of evolution and its implications.

0221. Logic, Experience and Inference. Cr. 4.

Prereq: NS 0121, 0122 and 0123. Available only to students of

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

Monteith College; exceptions require the consent of the Dean. The formal structure of the sciences and the structure of the formal sciences. The nature of deduction and of deductive systems with examples drawn from geometry, logic and statistics. Some aspects of quantum mechanics.

0222. Ecology and Man. Cr. 4.

Prereq: NS 0123 or consent of division chairman. The terrestrial ecosphere, its development, structure, dynamics and stability. The human component, its expansion, impact and prospects.

0223. Selected Topics in Contemporary Science. Cr. 4.

Prereq: NS 0221 and 0222, or consent of the division chairman. Topics and issues in twentieth century science. Content and style vary between sections and years in response to student and faculty interest. Subjects treated have included: the development of pragmatic philosophy, the development of technology, human evolution and behavior, and computer use.

Other Courses

0290. Tutorial Studies. Cr. 1-10 (Max. 30).

Prereq: consent of division chairman. Guided individual studies. Credit adjusted to the scope of project.

0341. Greek Science. Cr. 4.

Prereq: NS 0121 or consent of instructor. Interaction of pure and applied sciences with social, political, and artistic traditions from the time of Thales and Pythagoras to that of Ptolemy and Galen.

0342. Late Antique and Early Medieval Science. Cr. 4.

Prereq: NS 0121 or consent of instructor. Science from late antiquity to the thirteenth century; Roman, early medieval Latin, Byzantine, and Islamic science; absorption of Greek learning by the Latin West.

0343. Late Medieval and Early Modern Science. Cr. 4.

Prereq: NS 0121 or consent of instructor. Science from the thirteenth to the sixteenth centuries; the rise of universities, inter-related developments in theology, philosophy, and science; trends in physics, astronomy, mathematics, chemistry, biology, and medicine.

0347. Technological Development. Cr. 4.

Prereq: NS 0223, BE 0330, or consent of instructor. Research course directed at clarifying issues and identifying major modes in the conceptualization and interpretation of the environmental, technological, and cultural processes said to be involved in invention, industrialization, and the management of technological change.

0351. Theories of the Origin and Structure of the Universe. Cr. 4.

Prereq. or coreq: NS 0222 or consent of instructor. Theories, ancient and modern, of the origin, structure, and future of the universe.

0352. Atomism. Cr. 4.

Concepts of atomism and their influence in the development of science: among the Greek atomists, in the late medieval period, in the development of early modern chemistry and in other scientific endeavors before the present century.

0361. Biology and Human Affairs. Cr. 4.

Prereq: NS 0123 or consent of instructor. Discussion of the

changing relationship between man and his environment; population growth, eugenics, environmental contamination, and conservation.

0370. Logic and Mathematics. Cr. 4.

Interconnections of logic and mathematics. Propositional calculus and first-order predicate calculus; sets, relations and functions; the system of natural numbers, defined in terms of sets, and extensions, culminating in complex numbers; deductive systems.

0371. Practice, Prediction, and Method. Cr. 4.

Prereq. or coreq: NS 0223 or consent of instructor. Procedures, actual and purported, followed in science, considered as a method of inquiry.

0372. Induction, Hypothesis, and Probability. Cr. 4.

Prereq: sophomore standing or consent of instructor. Consideration of the philosophical problem of induction; alternative ways of analyzing inductive inference; the "pattern of hypothesis," the problem of the confirmation of hypothesis and several theories of the logical foundation of probability.

0397. Seminars in Natural Science. Cr. 1-10 (Max. 32).

May be repeated for credit. Prereq: consent of division chairman. Several different offerings may be made each quarter. More than one section may be taken for credit simultaneously.

0399. Seminar: Cooperative Self-Education. Cr. 2-4 (Max. 16).

Prereq: consent of division chairman or delegate. Venture in cooperative self-education, subject to the current guidelines of the College for such an enterprise, on file in the Dean's office and summarized in the Monteith College catalog.

0481. Senior Essay. Cr. 4.

Prereq: senior standing or consent of the Dean. Preparation for the writing of a rather elaborate essay on some subject of intellectual interest. Essentially independent work, though carried on under an adviser. No class meetings.

0482. Senior Essay. Cr. 4.

Prereq: NS 0481. Continuation of Natural Science essay preparation.

0483. Senior Essay. Cr. 4.

Prereq: NS 0482. Culmination of National Science essay.

Science of Society (SCS)

Basic Courses

0131. Social Science as Experience and Relation. Cr. 4.

Available only to students of Monteith College; exceptions require consent of the Dean. Interdisciplinary study of people through their experiences and social relationships. Various types of societies are examined.

0132. Major Intellectual Figures in the Social Sciences. Cr. 4.

Prereq: SCS 0131. The study of some classic theorists and basic concepts in social sciences.

0133. Applications. Cr. 5.

Prereq: SCS 0132. Applying the perspective and concepts of the earlier quarters to historical and contemporary "case studies."

0231. Research Project I. Cr. 4.

Prereq: SCS 0133. An area of research explored by students and faculty jointly, with special attention to procedures of research, formulation of problem, collection and handling of data, analysis and presentation of findings.

0232. Research Project II. Cr. 4.

Prereq: SCS 0231. An independent research project in close cooperation with the instructor located within the research area of the previous quarter. To provide the student with some notion of the actual process whereby ideas are created and tested in the social sciences.

Other Courses

0290. Tutorial Studies. Cr. 1-10 (Max. 30).

Prereq: consent of division chairman. Guided individual studies. Credit adjusted to the scope of the project.

0301. Architects of Thought in the Social Sciences. Cr. 3-4 (Max. 16).

Prereq: SCS 0132 or consent of instructor. Study of one of the major figures in the social sciences such as: Weber, Durkheim, Marx, Freud, Dewey, G. Mead. Major foci of his work; his place in the world of ideas and of events; his principal works. Criticism of his works. Letters and biographies will also be used.

0302. Personality Theory: Identity. Cr. 4.

Prereq: SCS 0132 or consent of instructor. Theories of personality as they have emerged from three philosophical views of the nature of man; psycho-physical dualism; socio-cultural determinism; social behaviorism. Characteristic assumptions, styles of research and inquiry.

0303. Factors in the Political Economy of Underdeveloped Areas. Cr. 4.

Prereq: SCS 0132 or consent of instructor. Four important factors at work in all underdeveloped countries: foreign investments, land tenure and peasant movements, urbanization and industrialization as related to workers' movements and the middle classes. These strategic factors in the political and economic transformation of such areas are closely related to the rapid social changes.

0304. Ideas and Methods in the Social Sciences. Cr. 4.

Prereq: consent of instructor. Comparison of some major approaches in the social sciences (e.g., genetic, comparative, functional, interactional, experimental, middle range, or action-oriented) and of methods of research and exposition characteristic of them.

0305. Tribal, Peasant and Urban Societies. Cr. 4.

Prereq: consent of instructor. Comparison of patterns of living in three types of human settings. Ecology, socialization, division of labor, modes of social integration, world view, artistic expression.

0306. Form, Function and Development. Cr. 4.

Prereq: consent of instructor. A comparison of theories and methods used in studying individuals, populations, aggregates, societies, cultures. Analysis of concepts basic to the study of change. Methodological problems involved in attempting to develop a theory or theories of change.

0311. Mass and Elite. Cr. 4 (Max. 12).

Prereq: consent of instructor. Interaction of mass and elites in complex societies. Freelance elites, institution linked elites; minority and majority based elites. Mass and elites in social change.

Mass and elites and the democratic process. Mass and elites and the economic system.

0313. Interaction: Process and Analysis. Cr. 4.

Prereq: consent of instructor. Comparative study of interaction; relations and situations; dyad, group, institution, society; processes: socialization, competition and conflict, consensus and concurrence, institutionalization and social change. Theories and research methods appropriate to type of comparison.

0370. Ethnic Studies I. Cr. 4-8.

Prereq: SCS 0132 or consent of instructor. Culture contact and related processes associated with national and cultural minorities in urban contexts.

0371. Ethnic Studies II. Cr. 4-8.

Prereq: SCS 0370 or consent of instructor. Continuation of Science of Society 0370.

0372. Ethnic Studies III. Cr. 4-8.

Prereq: SCS 0371 or consent of instructor. Continuation of Science of Society 0371.

0397. Seminars in Social Science. Cr. 1-10 (Max. 32).

May be repeated for credit. Prereq: consent of division chairman. Several different offerings may be made each quarter. More than one section may be taken for credit simultaneously.

0399. Seminar: Cooperative Self-Education. Cr. 2-4 (Max. 16).

Prereq: consent of division chairman or delegate. Venture in cooperative self-education, subject to the current guidelines of the College for such an enterprise, on file in the Dean's office and summarized in the Monteith College catalog.

0481. Senior Essay. Cr. 4.

Prereq: senior standing or consent of the Dean. Preparation for the writing of a rather elaborate essay on some subject of intellectual interest. Essentially independent work, though carried on under an adviser. No class meetings.

0482. Senior Essay. Cr. 4.

Prereq: SCS 0481. Continuation of Science of Society essay preparation.

0483. Senior Essay. Cr. 4.

Prereq: SCS 0482. Culmination of Science of Society essay.

Socio-Humanistic Studies (SHS)

0131. The Impact of Technology. Cr. 4.

Required of all freshmen in Engineering. Open to transfer students provided they take the complete sequence (SHS 0131, 0136, 0137). Extended case study approach to the social and human dimensions of a major technological development—energy conversion, transportation, or communication. (Topic may vary.) Historical introduction to key concepts of technological change, economic growth, and cultural values.

0136. The Industrial Revolution I. Cr. 4.

Required of all freshmen in Engineering. Open to transfer students provided they take the complete sequence (SHS 0131, 0136, 0137). Multi-disciplinary study of the beginnings of the Industrial Revo-

lution, especially in Britain: political, commercial, scientific and technological forces for change; consequences in manufacturing, trade, imperialism, changing standards of living, quality of life; literary, philosophical, and artistic responses.

0137. The Industrial Revolution II. Cr. 4.

Required of all freshmen in Engineering. Open to transfer students provided they take the complete sequence (SHS 0131, 0136, 0137). Continuation of Socio-Humanistic Studies 0136. The spread of industrialization. Related changes in political economy, education, philosophy, social thought, literature, the arts. Consideration of energy, ecology, technological assessment and alternative futures.

Interdivisional Courses (MON)

Advanced Transfer Students Program

0331. Texts and Contexts I. Cr. 4.

Prereq: junior standing. Works that have had an important influence on the development of ideas and institutions chosen from a variety of places, times, and areas of knowledge — philosophy, literature, religion, art, psychology, music, history (e.g., *The Republic*, *Varieties of Religious Experience*, *Don Quixote*, *The Prince*, *The Bhagavad-Gita*, *The Interpretation of Dreams*, *The Divine Comedy*).

0332. Texts and Contexts II. Cr. 4.

Prereq: MON 0331. Continuation of Interdivisional 0331.

0333. Texts and Contexts III. Cr. 4.

Prereq: MON 0332. Culmination of this Interdivisional sequence.

0337. Historical Views and Views of History I. Cr. 4.

Prereq: junior standing. The nature and uses of the past. Significant, seminal and controversial works dealing with classical Athens, the interaction of Europe and Islam, the Renaissance, the Age of Reason, and the history of the city.

0338. Historical Views and Views of History II. Cr. 4.

Prereq: MON 0337. Continuation of Interdivisional 0337. Intellectual and cultural history in the 19th and 20th centuries with emphasis on Romanticism, Positivism and Modernity in the arts and sciences.

0339. Historical Views and Views of History III. Cr. 4.

Prereq: MON 0338. Culmination of this Interdivisional sequence. Varieties of history and critical analysis of the assumptions of historians; the uses and abuses of history.

0441. World Views I. Cr. 4.

Prereq: senior standing. Significant paradigms of explanation (formism, mechanism, organicism, contextualism) as they inform the Western and Oriental arts and sciences, especially biology, poetry, political theory, physics, learning theory, sociology, music, art criticism, and anthropology.

0442. World Views II. Cr. 4.

Prereq: MON 0441. Continuation of Interdivisional 0441. The nexus of art, philosophy and religion in Hinduism, stoicism, epicureanism and humanism.

0443. World Views III. Cr. 4.

Prereq: MON 0442. Culmination of this Interdivisional sequence. Study of primitivism and the conversion of methodology to methodolatry.

Chicano-Boricua Studies

0241. Latino Cultural and Social Process I. Cr. 4-8.

Prereq: consent of instructor. Latinos in the United States, their culture from pre-Columbian times to the present.

0242. Latino Cultural and Social Process II. Cr. 4-8.

Prereq: MON 0241 or consent of instructor. Continuation of Interdivisional 0241.

0243. Latino Cultural and Social Process III. Cr. 4-8.

Prereq: MON 0241, 0242 or consent of instructor. Culmination of this Interdivisional sequence.

0251. Social and Economic Realities of Latinos I. Cr. 4-8.

Prereq: consent of instructor. The Latino Community in Detroit, and its relation to other communities and general institutions.

0252. Social and Economic Realities of Latinos II. Cr. 4-8.

Prereq: MON 0251 or consent of instructor. Continuation of Interdivisional 0251.

0253. Social and Economic Realities of Latinos III. Cr. 4-8.

Prereq: MON 0251, 0252, or consent of instructor. Culmination of this Interdivisional sequence.

0361. Seminar in Latino Urban Problems I. Cr. 4-8.

Prereq: consent of instructor. Urban problems affecting Latinos in the Detroit area. Students do field work and act as participant observers.

0362. Seminar in Latino Urban Problems II. Cr. 4-8.

Prereq: MON 0361 or consent of instructor. Continuation of Interdivisional 0361.

0363. Seminar in Latino Urban Problems III. Cr. 4-8.

Prereq: MON 0361, 0362, or consent of instructor. Culmination of this Interdivisional sequence.

Labor Studies

0321. The Workers' America. Cr. 4.

Prereq: twelve credits in Monteith courses or consent of instructor. The American worker in three definitive stages of American development: the predominately agrarian and rural dominated America; the American society experiencing the Industrial Revolution and its consequences; and the urbanized, computerized, automated America of today.

0322. Comparative Labor Movements. Cr. 4.

Prereq: MON 0321 or consent of instructor. A description, analysis and evaluation of major world labor movements outside of the United States.

0323. Labor Perspectives. Cr. 4.

Prereq: MON 0322 or consent of instructor. An examination of major current problems confronting American workers. The organized segment of the work force and inquiry into possible resolutions of these problems.

Black Studies

0351. The Afro-American Experience. Cr. 4 (Max. 12).

Prereq: sophomore standing. The role played by Afro-Americans in the development of American culture and society over the past three centuries, with special attention to the contemporary.

0352. The Afro-American Experience. Cr. 4 (Max. 12).

Black writers', playwrights' and poets' work will be examined in depth.

0353. The Afro-American Experience. Cr. 4 (Max. 12).

Prereq: successful completion of four credits in MON 0351, 0352 or four credits in black studies (I D 0390). Provides those students who have had a general course in the Afro-American experience with a research oriented seminar in contemporary black concerns.

Options for Senior Group Requirement

0431. Third World and Women Studies I. Cr. 4.

Prereq: junior standing. Monteith students given preference in cases of heavy enrollment. Self and society — biographical and autobiographical approach; introduction to histories of Blacks, Latinos, native Americans, Asian Americans, certain white ethnic minorities and women in the United States.

0432. Third World and Women Studies II. Cr. 4.

Prereq: junior standing. Monteith students given preference in cases of heavy enrollment. Intensive study of histories of Blacks, Latinos, native Americans, Asian Americans, certain white ethnic minorities and women in the United States.

0433. Third World and Women Studies III. Cr. 4.

Prereq: junior standing. Monteith students given preference in cases of heavy enrollment. Theories of oppression — political, social, cultural. Testing of hypotheses through field work.

0471. Modes of Thought I. Cr. 4

Prereq: senior standing or consent of Dean. Case studies of recurrent cultural-philosophical-technological-theological aspects of a culture and the way the constituent elements appear compatible and incompatible.

0472. Modes of Thought II. Cr. 4.

Prereq: MON 0471 or consent of Dean. Continuation of Interdivisional 0471.

0473. Modes of Thought III. Cr. 4.

Prereq: MON 0472 or consent of Dean. Continuation of Interdivisional 0472.

0491. Senior Colloquium. Cr. 4.

Prereq: senior standing, HS 0334 or consent of the Dean. Discussion and criticism of books and other materials. Students will be encouraged to work independently as much as possible.

0492. Senior Colloquium. Cr. 4.

Prereq, or coreq: MON 0491. Discussion and criticism of books and other materials. Students will be encouraged to work independently as much as possible.

Other Courses

0190. Freshman Seminar I. Cr. 1.

Limited to new students in the Monteith program. An introduction to full participation in the life of the College and the University and to the many resources available to the student. Discussion of the student's reflections on educational experiences and needs.

0191. Freshman Seminar II. Cr. 1.

Prereq: MON 0190. Limited to new students in the Monteith program. Continuation of Interdivisional 0190 with emphasis on student-initiated topics.

0303. Non-Western Civilization. Cr. 4 (Max. 16).

Prereq: SCS 0231 or consent of instructor. The history of a non-Western civilization, its characteristic institutions and social processes, its great traditions, the world view of its ordinary people. The artistic expression of this civilization.

0397. Interdivisional Seminars. Cr. 1-10 (Max. 32).

Prereq: consent of instructor. Several different offerings may be made each quarter. More than one section may be taken for credit simultaneously.

0398. Seminar in Learning Process. Cr. 2.

Prereq: consent of instructor. Fulfills the requirement called for in the College's "Guidelines for Seminars in Cooperative Self-Education."

0401. Language, Logic, and Ethics. Cr. 4.

Prereq: HS 0231. Discussion of selected disciplinary treatments and uses of statements, arguments, and evaluations in historic and contemporary thought. Discussion of proposed solutions of the problem of knowledge and value.

DEGREE REQUIREMENTS

Monteith College recommends students for either the degree of Bachelor of Arts or Bachelor of Philosophy upon their completion of a course of study approved by the faculty of the College. At least 180 credits are required. No more than six of these may be physical education credits; all other required credits must be in academic subjects.

The College specifies a minimum number of credits as a requirement for graduation in order that students may have some notion of the amount of work required for a degree. Students will err, however, if they measure their accomplishments primarily by the number of credits they acquire. Their objective should be the pursuit of an organized body of knowledge, and of those insights into the nature of human life which are called wisdom. Credits are crude measures of goals such as these, but are used by the College until better means of recording intellectual development have proved themselves.

GENERAL EDUCATION PROGRAM

In order to obtain either the degree of Bachelor of Arts or Bachelor of Philosophy a student who enters the Monteith program of general education as a freshman must:

1. pass the required Monteith College basic course sequences and the Senior Group Requirement with an average grade of C or better in all;
2. demonstrate ability to express himself clearly and accurately in English (proficiency in English composition, as acquired and demonstrated in papers written for Monteith courses, is noted on the student's transcript. The statement indicates that such proficiency is equivalent to nine credits, not degree credit, in communication skills);
3. pass with an average grade of C or better an adequate series of elective courses selected from those offered by any college of the University which, in the opinion of the adviser, form a coherent, broadly informative pattern for the individual concerned.

ADVANCED TRANSFER PROGRAM

In order to qualify for the degree of Bachelor of Arts or Bachelor of Philosophy, students in the Upper Division Program for Advanced Transfer Students must:

1. complete with an average grade of at least "C" thirty-six credits in the three advanced general education sequences: *Texts and Contexts; Historical Views and Views of History; World Views;*
2. complete with an average grade of at least "C" nine credits in elective courses in Monteith College;
3. complete satisfactorily an adequate series of courses selected from those offered by any college or school of Wayne

State University which, in the judgment of the adviser form a coherent, broadly informative pattern for the individual concerned — whether constituting a departmental major, a professional curriculum, or an interdisciplinary program;

4. complete a total of at least 180 credits (including credits transferred from other institutions) in courses acceptable toward graduation.

Hence a student who transfers to Monteith with, for example, ninety credits is required to take forty-five credits in Monteith courses (thirty-six of which must be in the three advanced general education sequences). The remaining forty-five credits may be devoted to general education or to the mastery of a major field of concentration or a professional program.

COUNSELING AND ADVISING

The general counseling of students in Monteith College is a primary responsibility of the College Advisers. Throughout his college career the student will encounter problems of a general nature. One should feel free to discuss these with one of the advisers, or any member of the faculty with whom he feels a special rapport. However, in order to provide continuity to the student's course selections from quarter to quarter, the advisers are assigned to assist him and one of them must sign his program each time before he registers.

GRADUATION WITH DISTINCTION

A candidate for the Monteith bachelor's degree may receive a special diploma indicating that he has graduated "with distinction" or "with high distinction" under the following conditions:

Distinction — An honor point average of 3.4, and an average grade of B in the Senior Group Requirements.

High Distinction — An honor point average of 3.7, and an average grade of B+ in the senior colloquia and senior essay.

The above conditions relate to students who have earned at least 150 credits in residence at Wayne. The cases of other students, as well as those to whom an injustice may be done by strict adherence to the above criteria, will be given special attention by the Administrative Council of Monteith College.

PHI BETA KAPPA

Phi Beta Kappa, the oldest scholarship honor society in this country, dating from December 5, 1776, installed its one hundred and fifty-sixth chapter, Michigan Gamma, at Wayne State University on January 16, 1953, under a charter granted to the College of Liberal Arts of the University. Membership in the chapter is restricted to its charter members and to those members of the junior and senior classes of the College of Liberal Arts and Monteith College who have been elected to membership by the chapter and who have formally accepted election and participated in the initiation ceremonies of this or some other cooperating chapter. In addition, all

members of the University staff who have been elected to membership by another chapter of Phi Beta Kappa automatically become affiliated members of the local chapter for the duration of their stay in the University.

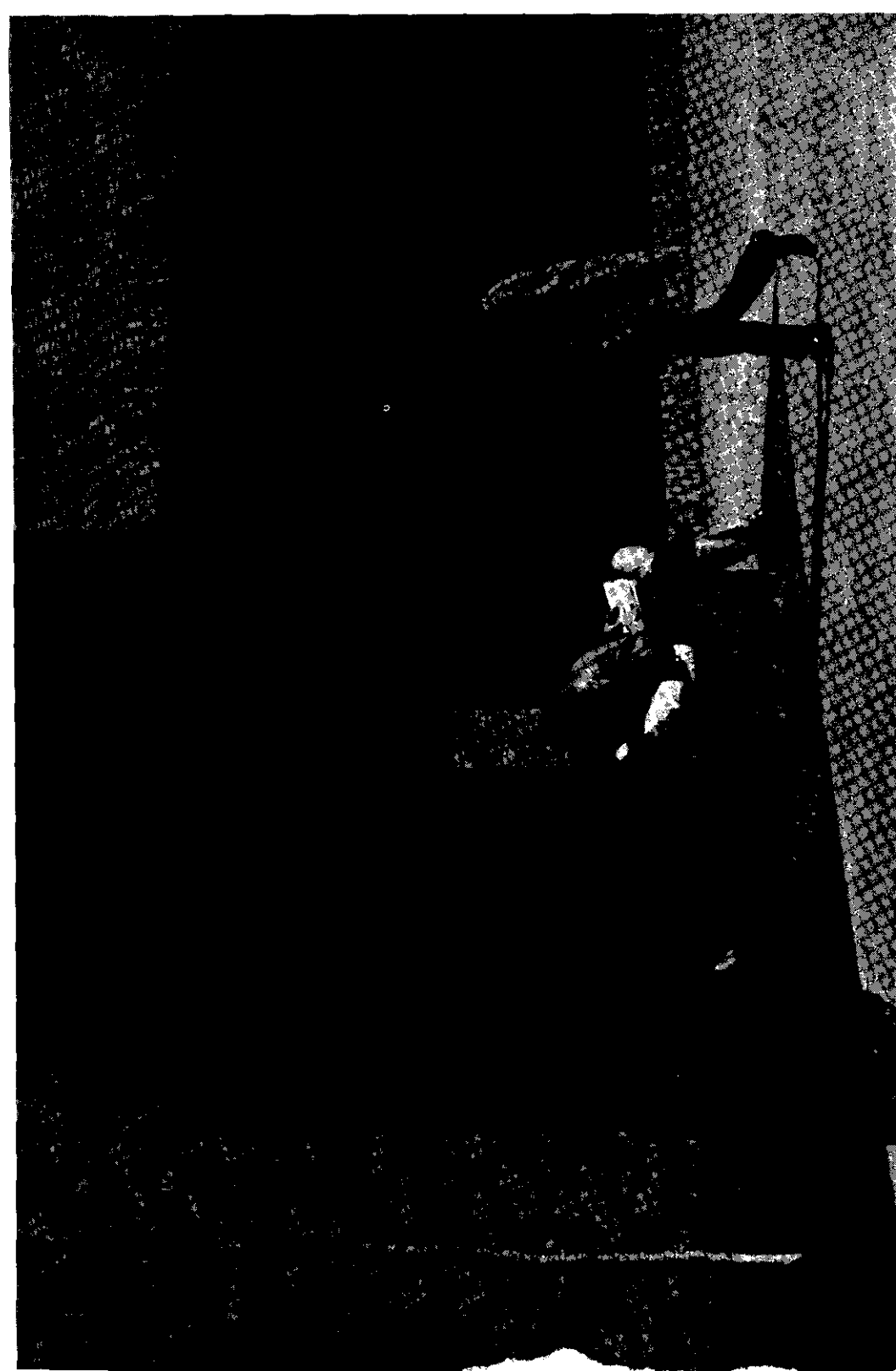
OTHER MATTERS

The administration of Monteith College reserves complete freedom of action, within the framework of its University responsibilities, to deal with all matters not specifically discussed in this bulletin.

FURTHER INFORMATION

Any interested person is invited to visit or call the Monteith College advisers. Their office is at 5165, the Mall. Please feel welcome to write or telephone for an appointment. The number is 577-4358.

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6.





College of Nursing

THE COLLEGE

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. At the request of the Detroit Council on Community Nursing the Detroit Board of Education established the Department of Nursing within the College of Liberal Arts in order that the programs of staff education offered by two of its member agencies, the Detroit Department of Health and the Detroit Visiting Nurse Association, could be made available to all nurses employed in the area.

From 1930 to 1945, a variety of programs was offered in the Department of Nursing:

1. a certificate program in public health nursing for registered nurses,
2. a program for registered nurses employed in hospital nursing services and in schools of nursing,
3. a five-year baccalaureate degree program in cooperation with hospital schools of nursing, and
4. a program with selected hospital schools of nursing through which the hospital students received a portion of their instruction in the University.

Through these early years the programs of the Department of Nursing in the College of Liberal Arts had become so varied, the enrollment so large and the contribution to the total community so important that it was evident that the interests of all could best be served by the establishment of a college of nursing within the University.

In 1944, at the request of the Detroit Council on Nursing and the College of Liberal Arts, the Board of Education authorized the establishment of the College of Nursing. The College began to function as one of the components of the University in the Spring of 1945.

In 1947 for the first time, the College assumed responsibility for teaching clinical nursing courses in a program leading to the degree of Bachelor of Science in Nursing. A number of hospitals and health agencies were selected by the faculty as settings for the clinical instruction and students from this program were eligible to take the examination for the registered nurse license.

Since 1945, the College has had programs in nursing leading to the degree of Master of Science in Nursing. These programs offer preparation in clinical specialties in nursing and in teaching and administration. The development of the graduate program has contributed to the strengthening of the research effort of the faculty.

The College has had substantial financial support from public and private sources such as the United States Public Health Service, the Children's Bureau, the W. K. Kellogg Foundation, Greater Detroit Hospital Fund, Richard Cohn Foundation, the Rockefeller Foundation, Greater Detroit Hospital Fund, Richard Cohn Foundation, and the Helen Newberry Joy Fund. Support from these sources made it possible for the College to develop its clinical courses on the undergraduate and graduate levels; to have a new home, the Richard Cohn Memorial Building, in 1960; to contribute to the building of the Helen Newberry Joy residence for women students of the University; and to provide financial assistance to nursing students.

Detroit Education for Nursing via Television (DENT) began in 1966 in response to a request from the Michigan League for Nursing for the College to take the leadership in a project involving twelve schools of nursing. Initially, the project was funded by the Department of Health Education and Welfare to develop televised lessons for the schools.

For some years, the College supported ongoing research projects and participated in the United States Public Health Service Faculty Research Development Grants Program. In the Fall of 1969, the College of Nursing established a Center for Nursing Research in which members of several disciplines collaborated in the identification of health and nursing problems of mutual interest in designing proposals and in implementation of research. In the Fall of 1971, the facility became the Center for Health Research of the College of Nursing. Since May, 1970, the Center has been partially supported through a United Public Health Service Research Development Grant; however as a result of its efforts in developing research programs, in January, 1972, it was one of four nursing units in the United States to be awarded a National Institute of Health General Research Support Grant.

The College has made nationally recognized contributions to the staffing of educational and service organizations, curricula designs of baccalaureate programs, 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. The urban setting of this University provides 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. Nursing is an intellectual discipline requiring rigorous study of its components as well as practice of its skills. Because it deals with human needs in a context characterized by expanding knowledge, nursing requires both continuing individual study as well as graduate education.

The College also contributes to the body of knowledge in nursing and the improvement of patient care through systematic investigation of nursing problems. It seeks, by the devising of experimental roles for nurses and the creation, demonstration, and evaluation of innovations in nursing service design, to respond to changing societal needs.

The College operates within the structure of the total University, benefiting from its strength and resources and contributing to them. Inherent in the philosophy of Wayne State University is the belief that the University must prepare men and women in such a way that they will have the intellectual and moral strengths to make value judgments and to assume participant roles in responding to the needs of our 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 members of our society, we believe that emphasis should be placed on the development of each individual student to her optimum potential as an intelligent human being. As a result, the student accepts the dignity and worth of man, selects values which foster an open and ready mind and uses reflective thinking and critical inquiry. As a professional person, the student uses knowledge creatively, accepts responsibility for her own actions and actively supports the goals of the nursing profession.

The program designed for the preparation of nurses must include the intellectual, social, and technical components of a liberal and professional education which are available to students within this University. Students actively participate in program planning and in the selection of learning experiences.

Professional education is designed to encourage and support the student as she assumes responsibility for her own learning. It is sufficiently flexible to enable each student to develop further her unique interests and abilities. The faculty supports the academic freedom of students to doubt, challenge, contest, and debate in a spirit of inquiry as an essential ingredient in the students' development. Continuing evaluation on the part of students and faculty is essential in developing the perspective of the student as a person, member of society, and member of the profession.

The 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 those independent functions of the

nurse, but also those which are arrived at through intra-professional and interdisciplinary collaboration.

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 at the master's level prepares nurses for leadership in health care. It further develops clinical competence and increases 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. Opportunities are thus afforded in intellectual discipline and the understanding of human behavior in health and illness.

LOCATION

The College is located in the Richard Cohn Memorial Building at 5557 Cass Avenue, Detroit, Michigan 48202.

ACCREDITATION

The undergraduate program is approved by the Michigan Board of Nursing, and graduates from it are admitted to the licensing examination for professional nurses in the State of Michigan, and all degree programs of the College are accredited by the National League of Nursing.

STUDENT ORGANIZATIONS

The College of Nursing Council is composed of elected representatives of students, faculty, and staff. 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 Association of Nursing Students is composed of students in the undergraduate program who are preparing to become registered nurses.

The Rho Nu Club is open to both undergraduate and graduate students who are registered nurses.

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.

COLLEGE OF NURSING ALUMNI ASSOCIATION

The Alumni Association of the College of Nursing is composed of graduates and former students of the College. This group is part of the general University Alumni Association, but has its own organization. Its purpose is to keep members in close touch with College activities and with professional developments, and to work for the welfare of the College of Nursing.

The Alumni Association recognizes excellence in academic achievement by granting an *Alumni Award* to outstanding graduating students.

College of Nursing graduates are eligible for membership in the American Association of University Women.

FINANCIAL AIDS

The University Office of Scholarships and Financial Aids, Room 222, Administrative Services Building (see page 30), administers scholarships, grants, loans and emergency funds available to all University students and funds provided under the Nurse Training Act of 1971 especially for College of Nursing students. Deadline dates for application for financial aids are August 1, February 1, and April 1.

Financial Assistance

The Helen Newberry Joy Fund, the College of Nursing Alumni Fund, and the Wayne County Health Foundation Fund provide limited assistance for financially and academically qualified students. For information about these and other funds, the student should consult her adviser in the College of Nursing.

Scholarships for Graduate Students

Graduate-Professional Scholarships — Each year the University awards a number of tuition scholarships for students in graduate or professional degree programs. Application forms are available from the Office for Graduate Studies and are returnable by April 1. Awards are contingent upon acceptance for graduate study and full-time enrollment.

Financial Assistance Available Through the Military Services

Assistance is given to students who enroll in one of the Military Student Nurse Programs. Depending on the service chosen, benefits may include cost of tuition, fees, books, housing and food, as well as a base salary for the last two years of the college program.

Employment Opportunities for Graduate Students

Part-time employment opportunities are available both on and off campus for registered nurses. Information about these and opportunities as a graduate assistant in the College of Nursing may be obtained from the Graduate Office in the College of Nursing.

ACADEMIC REGULATIONS

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the College of Nursing.

The items marked with an asterisk apply both to graduates and undergraduates; those not so marked apply only to undergraduates.

*REGISTRATION

Each student is required at the beginning of each quarter of attendance to register according to the procedure and schedule published in the official University *Schedule of Classes*. Registration must be completed before the student may attend classes. For registration dates, the student should consult the *Schedule of Classes*. Undergraduate students in the College of Nursing must have their programs of study authorized by a faculty adviser each quarter before they register. The usual full-time undergraduate program is twelve to sixteen credits. With the written consent of the faculty adviser, a sophomore, junior, or senior who has a cumulative 2.6 honor point average may elect additional credits. A minimum of eight credits in graduate courses constitutes a full-time load for graduate students.

Scholarship

A grade of D is unsatisfactory in any nursing course. A student receiving a grade of D may continue in the program only with consent of the program director. A student who receives a grade of D in any two courses in nursing may be required to withdraw from the College with or without previous notice. A grade of S (Satisfactory) or P (Passed) in any nursing course is the equivalent of at least a C grade.

*ATTENDANCE

Regularity in attendance and performance is necessary for success in college work. Each instructor at the beginning of the course will announce her attendance requirements. Students are expected to abide by attendance requirements and to assume responsibility for seeking guidance and direction as needed. Absence from field practice must be reported at once both to the agency and to the instructor.

PROBATION

1. A student is placed on probation if he/she does not maintain a minimum honor point average of 2.0 in both academic and nursing courses.
2. *The report of final grades sent to the student constitutes the official notice of probation.*
3. In order to remain in the College of Nursing the full-time pre-nursing student on probation must qualify for return to regular status within the next three quarters. The part-time

student must qualify within the next four quarters, one of which must be full-time. The pre-nursing student's honor point average must not decrease. Any variation from this regulation requires permission of the program director.

4. In order to remain in the college a student in the nursing major on probation must improve his/her honor point average each quarter and qualify for return to regular status within the next two quarters of full-time study or the next three quarters, one of which must be full-time. Any variation from this regulation requires permission of the program director.

5. A student on probation may be admitted to a nursing course only with the consent of the program director.

6. A student may be excluded from the College at any time, without having been previously warned or placed on probation, for irresponsible attendance and performance in field practice assignments.

7. Restriction: Students on probation are not eligible to represent the College in any student activity.

*STUDENT RIGHTS AND RESPONSIBILITIES

Continuance in the College is contingent upon compliance with official rules, regulations, requirements, and procedures of the University and the College of Nursing. *The student is responsible for reading the contents of this bulletin pertinent to the College of Nursing and otherwise informing herself and fulfilling all course and degree requirements in proper sequence with satisfactory scholarship.* In case of doubt regarding any matter affecting her standing as a student, the student should consult with her adviser. The faculty reserves the right to amend or revise the policies and requirements set forth in the College of Nursing section of this bulletin.

In addition to formal academic requirements, a student in the College of Nursing must demonstrate traits of stamina, character, and personality necessary for sound work in this field. A student may be required to withdraw from the College when, in the judgment of the faculty, her work shows that in these respects she is unsuited for nursing.

Student Rights and Responsibilities for the University — see page 15.

UNDERGRADUATE STUDY

ADMISSION

The College of Nursing admits registered nurses who are graduates of a diploma or associate degree program in nursing and other qualified students who have achieved at least sophomore standing. High school graduates are admitted to the College of Liberal Arts for a pre-nursing program of study. The College is limited in the number of students that can be accommodated in the undergraduate program and has final jurisdiction in the selection of its students.

Pre-nursing and transfer students may file an Application for Admission to the College of Nursing as soon as the prerequisites have been met. The filing deadline is July 10th. Application forms may be secured from the College of Nursing. Registered nurses who have been admitted to the College of Nursing must file a separate application for admission to the nursing major.

ADMISSION TO THE NURSING MAJOR

Prerequisites

A. Satisfactory completion of forty-four quarter hours of credit including the following courses or their equivalents:

Biology 0103	.....	Introductory Biology
Biology 0220	.....	Introductory Microbiology
Chemistry 0102	.....	General Chemistry I
Chemistry 0103	.....	General Chemistry II
Chemistry 0104	.....	General Chemistry III
English 0150	.....	Freshman Literature and Composition
Psychology 0198	.....	Introductory Psychology
Sociology 0201	.....	Introduction to Sociology

In addition to the above, registered nurse students must also complete:

Biology 0188	.....	Human Anatomy and Physiology I
Biology 0189	.....	Human Anatomy and Physiology II
Psychology 0340	.....	Developmental Psychology
Nursing 0301	.....	Introduction to Nursing Science

B. Grades of C or better must be achieved in all of the above courses, and they may not be taken for Passed - Not Passed grades.

C. Basic mathematical skills must be demonstrated by satisfactory achievement on the Mathematics Qualifying Examination or in Mathematics 0090.

D. Registered nurses must complete placement examinations in nursing.

E. Admission to the College of Nursing is dependent upon approval of health status which is based upon an evaluation of functional ability to meet curriculum objectives in the various settings used for educational experience.

HEALTH REQUIREMENTS FOLLOWING ADMISSION

A. Students who are admitted to the College of Nursing are required to have an annual physical examination by the University Health Service.

B. 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 program director.

C. The University and College reserve the right to refuse or cancel a student's admission, or to direct his/her activities in the school if her health status indicates such action is essential for the safeguarding of the patients with whom the student comes in contact, the student, or the University.

READMISSION

Following An Interruption In Residence

Undergraduate nursing students whose attendance has been interrupted for four or more consecutive quarters are required to apply to the College of Nursing for readmission. Deadline dates for such applications are the same as those for regular admission to the University. Enrollment in required courses may have to be deferred for those who have interrupted their program of study.

UNDERGRADUATE PROGRAM

Leading to the Degree of Bachelor of Science in Nursing

The undergraduate program is designed to prepare the student upon graduation to begin the practice of nursing in general and specialized hospitals, in public health and other community agencies. The program leads to the degree of Bachelor of Science in Nursing and provides a base for graduate study in nursing. It consists of a combination of courses in general and professional education.

Objectives

The graduate of the baccalaureate program is expected to:

1. Provide care to individuals, families and groups in a variety of settings with utilization of the nursing process, incorporating scientific knowledge and humanistic concepts.
2. Recognize and accept the rights and dignity of the individual.
3. Teach, supervise and guide others who participate in patient care, including ancillary personnel, patients and families.
4. Collaborate with members of the health team to promote and maintain the health of individuals, families or the community.
5. Participate in programs which promote the health and welfare of society.

6. Accept responsibility for personal and professional development.

7. Recognize and accept the ethical and legal responsibilities in nursing practice.

8. Promote improvement of professional practice.

GENERAL EDUCATION

A minimum of ninety-four credits must include:

Communication — English composition and speech.

Natural Science — general biology, anatomy and physiology, microbiology, chemistry, nutrition and psychology.

Social Science — a minimum of four courses to include principles of American government, an introductory and one advanced course in sociology.

Humanities — a minimum of four courses to include at least one in American or English literature.

Elective Sequence — a minimum of four courses in sequence as defined by a department.

Other — electives.

Mathematics Qualification — The faculty requires the students to demonstrate their proficiency in mathematics.

PROFESSIONAL EDUCATION

	<i>credits</i>
NUR 0210 The Nurse and the Individual I	3-6
NUR 0211 The Nurse and the Individual II	3-6
NUR 0212 The Nurse and the Individual III	3-6
NUR 0220 Human Development and Human Services	2
NUR 0301 Introduction to Nursing Science	2-6
NUR 0311 The Nurse and the Family I	3-10
NUR 0312 The Nurse and the Family II	3-10
NUR 0313 The Nurse and the Family III	3-12
NUR 0326 Perspectives in Nursing I	2
NUR 0327 Perspectives in Nursing II	2
NUR 0440 The Nurse and the Community I	3-8
NUR 0441 The Nurse and the Community II	3-8
NUR 0442 The Nurse and the Community III	3-8
NUR 0450 Senior Seminar I	2
NUR 0451 Senior Seminar II	2
NUR 0452 Senior Seminar III	2

an elective from the following

NUR 0420 Special Topics in the Care of the Physically III Adult	2-6
NUR 0423 Intensive Care Nursing	2-6
NUR 0425 Rehabilitation Aspects of Nursing	2-6
NUR 0426 Research Process Applied to Health Problems	2-6
NUR 0427 Special Topics in Maternity and Pediatric Nursing	2-6
NUR 0428 Special Topics in Psychiatric Nursing	2-6
NUR 0429 Special Topics in Public Health Nursing	2-6
NUR 0524 Mental Retardation and the Nurse	2-6

REGISTERED NURSES

Prior to entry to the nursing major provision is made for registered nurses to take placement examinations in nursing to validate previous education and experiences in nursing and to individualize their programs. Registered nurses who achieve satisfactorily on the examinations may complete the nursing major in three quarters or one academic year of full time study. Upon satisfactory achievement in these nursing courses, a maximum of forty-eight advanced standing credits may be granted toward the total of ninety-four nursing credits required for a degree.

Nursing major for the R.N. who has achieved satisfactorily on all placement examinations in Nursing

Fall Quarter

	<i>credits</i>
NUR 0212..... The Nurse and the Individual	4
NUR 0313..... The Nurse and the Family III	6
FAC 0223..... Principles of Nutrition and Nutrient Metabolism.....	2*
	12

Winter Quarter

NUR 0441..... The Nurse and the Community II	8
NUR 0451..... Senior Seminar II	2
NUR 0220..... Human Development and Human Services	2
NUR 0327..... Perspectives in Nursing II	2
Nursing Elective	2
	16

Spring Quarter

NUR 0442..... The Nurse and the Community III	8
NUR 0452..... Senior Seminar III	2
NUR 0328..... Perspectives in Nursing III	2
Nursing Elective	4
	16

A part time program to complete the nursing major may be planned for the registered nurse who is unable to attend college as a full time student. This program must be completed within three years following admission to the nursing major.

BACHELOR'S DEGREE REQUIREMENTS

The degree of Bachelor of Science in Nursing is conferred upon each candidate who satisfactorily completes all the following requirements:

Credits — A minimum of 190 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.

*May take for credit by examination.

Proficiency Examination in English Composition — At the beginning of the junior year, all students are required to take the proficiency examination in English composition. Students who fail to pass this examination will be referred for corrective work to the Composition Clinic.

University Requirement in American Government — See page 11.

Residence — The student must earn the last forty-five credits prior to graduation at Wayne State University. A minimum of thirty-six credits in professional nursing must be satisfactorily completed in the College of Nursing.

Time Limitation — If a student does not complete degree requirements within four years, her program is subject to re-evaluation.

Application for Degree — See page 15.



GRADUATE STUDY

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 16. The following additions and amendments pertain to the College of Nursing.

ADMISSION

In addition to filing the *Application for Graduate Admission* the applicant is required to submit a College of Nursing Application, a transcript of his/her basic nursing education record, and a personal statement describing his/her goals for graduate study. A personal interview is desirable.

Deadline dates for filing *Application for Graduate Admission* are published by the Office for Graduate Admissions, room 116, Administrative Services Building, Cass and Antoinette Avenues. Application forms may be obtained from the Office for Graduate Admissions or from the Graduate Office of the College of Nursing. Obtain College of Nursing application forms from the College of Nursing, Graduate Office, 254 Cohn Building, Cass and Palmer.

To qualify for admission the applicant must have completed a National League of Nursing (N.L.N.) accredited baccalaureate program in nursing, which prepares for professional nursing in all fields. The applicant is required to present evidence of professional competence and current licensure to practice nursing. A license to practice nursing in the state of Michigan and insurance protection for malpractice are strongly urged.

Applicants who have completed other curricula or have deficiencies will be considered individually and may be required to enroll in designated undergraduate and graduate courses beyond the minimum credits necessary for advanced degrees. Opportunities are provided for the applicant to take examinations in nursing and general education. Satisfactory achievement in an examination will permit waiver of the required prerequisite. Such applicants are required to have an honor point average of 3.0 for their total undergraduate work.

Applicants unless otherwise advised should plan to start full-time study in the fall. The sequence of courses precludes admission for any other quarter unless the applicant is contemplating part-time study.

The College of Nursing reserves the right to revise or amend its entrance requirements beyond the minimal requirements set by the Graduate Division of the University. Applicants will not be accepted into the College of Nursing Graduate Program until all pertinent credentials have been received and evaluated.

REGULAR ADMISSION

A regular admission may be authorized upon an adviser's recommendation if the applicant's honor point average is 2.6 or above for the upper division (approximately the last 100

credits) of her undergraduate course work in an N.L.N. accredited program.

A nonresident may be refused admission if such admission prevents acceptance of a qualified Michigan resident whose admission would not be in the probationary classification.

GRADUATE PROGRAM

Leading to the Degree of Master of Science in Nursing

Objectives

The student is expected to develop:

1. ability to identify nursing problems and to design an investigation and apply appropriate methods of inquiry to its solution;
2. competency in a clinical field of nursing based on an understanding of the basic sciences and of the theories guiding patient care;
3. knowledge of theories basic to teaching or administration and ability to plan and execute selected aspects of the teaching or administration process;
4. ability to evaluate and direct one's own learning;
5. appreciation of the role of the professional nurse in promotion of community, national, and international health and welfare programs.

Several clinical departments have already revised their courses in keeping with objectives more recently developed and accepted by the graduate faculty as goals to be reached within the next few years.

MAJOR FIELDS OF STUDY¹

The student elects one major field of study within nursing. All students are urged to seek licensure to practice nursing in the State of Michigan. A two-course sequence in statistics and research is required in all majors.

Functional Majors

Those choosing a functional major are required to complete a sequence of courses in clinical nursing and the related science courses.

Teaching Clinical Nursing — Required Courses: Nursing 0701, 0703, 0782, 0798, and 0795, or 0796, or 0799, or 0899, and a sequence from one of the clinical areas: Medical-Surgical Nursing, Pediatric Nursing, Maternity Nursing, Public Health Nursing, Adult or Child Psychiatric Nursing; and related science courses.

¹ For information on the courses listed below see pages 462-465.

Learning experiences appropriate for those preparing to teach in technical nursing education programs are provided within the required nursing courses and through election of other relevant courses. Students particularly interested in teaching in associate degree programs in nursing should consult their advisers early in their program.

Administration of a Nursing Education Program — Required Courses: Nursing 0701, 0703, 0771, 0772, 0798, and 0795, or 0796, or 0799, or 0899, and a sequence from one of the clinical areas: Medical-Surgical Nursing, Pediatric Nursing, Maternity Nursing, Adult or Child Psychiatric Nursing; and related sciences.

Administration of a Nursing Service — Required Courses: Nursing 0761, 0762, 0763, 0797, and 0795, or 0796, or 0799, or 0899; and Labor Relations; and a sequence from one of the clinical areas: Medical-Surgical Nursing, Pediatric Nursing, Maternity Nursing, Adult or Child Psychiatric Nursing; and related sciences.

Clinical Majors

Those choosing a clinical major are required to complete a more extensive sequence of clinical nursing courses and courses in related sciences.

Health Nurse Clinician Program — Applicants interested in specializing in Medical-Surgical or Public Health Nursing enroll in an integrated program in clinical nursing of adults in which the role of the nurse as a clinician interested in health maintenance and promotion is studied and developed. Courses are taught by faculty in the Departments of Medical-Surgical Nursing, Public Health Nursing and Psychiatric Nursing. Graduates of the program and physicians associated with the clinical facilities are utilized for field practice and teach in several courses.

The Health Nurse Clinician Program is intended for professional nurses who are interested in expanding the clinical role of the nurse and improving the quality of care provided in institutions and community settings.

The preparation of a Health Nurse Clinician is part of a research project supported by funds from the Division of Nursing, Public Health Service, of the Department of Health, Education and Welfare. In addition to the preparation of the Health Nurse Clinician, the project includes development of new practitioner roles and evaluation of both the preparation and implementation of new roles of the Health Nurse Clinician as well as identifying desirable changes in the delivery of health care.

Required courses: Nursing 0711, 0712, 0713, 0715, 0716, 0717, 0718, 0719, 0720, 0785 and Physiology 0752.

For further details consult: Director, Health Nurse Clinician Project.

Medical-Surgical Nursing — See Health Nurse Clinician Program.

Nursing in Child Psychiatry — Required Courses: Nursing 0741, 0742, 0746, 0747, 0748; Psychology, Sociology, Human Development.

Nursing in Adult Psychiatry — Required Courses: Nursing 0741, 0742, 0743, 0744, 0745; Psychology, Sociology, Human Development.

Public Health Nursing — See Health Nurse Clinician Program.

SAMPLE PROGRAM PLANS

Functional and Clinical Majors¹

Administration of a Nursing Service with Medical-Surgical Nursing

<i>Fall Quarter</i>		<i>Winter Quarter</i>	
	<i>credits</i>		<i>credits</i>
Adult Clinical Nursing I . . .	4	Adult Clinical Nursing II . . .	4
Physiology	5	Field Practice in Adult Clinical Nursing . . .	4
Statistics	4	Organization and Administration of the Nursing Service	4
	<hr/> 13		<hr/> 12

<i>Spring Quarter</i>		<i>Summer Quarter</i>	
	<i>credits</i>		<i>credits</i>
Research in Nursing	4	Industrial Relations	4
Field Practice in Administration of the Nursing Service	4	Cognate	4
Personnel Development	4		<hr/> 8
	<hr/> 12		

<i>Fall Quarter</i>	
	<i>credits</i>
Seminar in Administration in Nursing Service	3
Essay Direction	3
Cognate	4
	<hr/> 10

Administration of a Nursing Education Program with Maternity Nursing

First Year

<i>Fall Quarter</i>		<i>Winter Quarter</i>	
	<i>credits</i>		<i>credits</i>
Curriculum Development in Nursing	4	Maternity Nursing I	4
Embryology	5	Administration of Nursing Education Programs	4
Statistics	4	Genetics	4
	<hr/> 13		<hr/> 12

¹ NUR 0095, Orientation to the College of Nursing, Cr. 1, is recommended for all newly admitted students. Other options available, depending on choice of functional major and/or clinical sequence.

Spring Quarter

	<i>credits</i>	
Maternity Nursing II	4	
Research in Nursing	4	
Teaching and Evaluation in Nursing	4	
	<hr/>	
	12	

Second Year

Fall Quarter

	<i>credits</i>	
Field Practice in Administration of Nursing Education Programs	4	
Research Practicum	3	
Seminar in Nursing Education	3	
	<hr/>	
	10	

Winter Quarter

	<i>credits</i>	
Research Practicum	3-6	
Cognate	4-8	
	<hr/>	
	7-14	

Teaching Clinical Nursing with Public Health Nursing

First Year

Fall Quarter

	<i>credits</i>	
Curriculum Development in Nursing	4	
Health Care Organization ..	6	
Statistics	4	
	<hr/>	
	14	

Winter Quarter

	<i>credits</i>	
Health Care Organizations	6	
Public Health Nursing I ...	4	
	<hr/>	
	10	

Spring Quarter

	<i>credits</i>	
Teaching and Evaluation in Nursing	4	
Public Health Nursing II ..	4	
Research in Nursing	4	
	<hr/>	
	12	

Second Year

Fall Quarter

	<i>credits</i>	
Seminar in Nursing Education	3	
Thesis Direction	8	
	<hr/>	
	11	

Winter Quarter

	<i>credits</i>	
Field Practice in Clinical Teaching	4	
Thesis Direction	4	
	<hr/>	
	8	

Teaching Clinical Nursing with Adult Psychiatry

First Year

Fall Quarter

	<i>credits</i>	
Psychiatric Nursing	4	
Psychoanalytic Theory	4	
Curriculum Development in Nursing	4	
	<hr/>	
	12	

Winter Quarter

	<i>credits</i>	
Descriptive Statistics and Methods of Research in Health Science	4	
Teaching and Evaluation in Nursing	4	
Psychiatric Nursing	4	
	<hr/>	
	12	

Spring Quarter

	<i>credits</i>	
Inferential Statistics and Experimental Design in Health Science	4	
Nursing in Adult Psychiatry	4	
Nursing in Adult Psychiatry	2	
	<hr/>	
	10	

Second Year

Fall Quarter

	<i>credits</i>	
Nursing in Adult Psychiatry	2	
Adult Psychiatry in the Community	2	
Cognate	8	
	<hr/>	
	12	

Winter Quarter

	<i>credits</i>	
Adult Psychiatry in the Community	2	
Field Practice in Clinical Teaching	4	
Field Study	3	
	<hr/>	
	9	

Spring Quarter

	<i>credits</i>	
Field Practice in Clinical Teaching	4	
Field Study	3	
Seminar in Nursing Education	3	
	<hr/>	
	10	

Teaching Clinical Nursing with Adult Psychiatry

First Year

Fall Quarter

	<i>credits</i>	
Psychiatric Nursing	4	
Psychoanalytic Theory	4	
Curriculum Development in Nursing	4	
	<hr/>	
	12	

Winter Quarter

	<i>credits</i>	
Descriptive Statistics and Methods of Research in Health Science	4	
Teaching and Evaluation in Nursing	4	
Psychiatric Nursing	4	
	<hr/>	
	12	

Spring Quarter

	<i>credits</i>	
Inferential Statistics and Experimental Design in Health Science	4	
Nursing in Adult Psychiatry	4	
Nursing in Adult Psychiatry	2	
	<hr/>	
	10	

Second Year

Fall Quarter

	<i>credits</i>	
Nursing in Adult Psychiatry	2	
Adult Psychiatry in the Community	2	
Cognate	8	
	<hr/>	
	12	

Winter Quarter

	<i>credits</i>	
Adult Psychiatry in the Community	2	
Field Practice in Clinical Teaching	4	
Field Study	3	
	<hr/>	
	9	

Spring Quarter

	<i>credits</i>
Field Practice in Clinical Teaching	4
Field Study	3
Seminar in Nursing Education	3
	10

Nursing in Adult Psychiatry

First Year

Fall Quarter

	<i>credits</i>
Psychiatric Nursing	4
Psychoanalytic Theory	4
Cognate	4
	12

Winter Quarter

	<i>credits</i>
Descriptive Statistics and Methods of Research in Health Science	4
Psychiatric Nursing	4
Cognate	4
	12

Spring Quarter

	<i>credits</i>
Inferential Statistics and Experimental Design in Health Science	4
Nursing in Adult Psychiatry	4
Nursing in Adult Psychiatry	2
	10

Second Year

Fall Quarter

	<i>credits</i>
Nursing in Adult Psychiatry	2
Adult Psychiatry in the Community	2
Master's Thesis Research and Direction	4
Cognate	4
	12

Winter Quarter

	<i>credits</i>
Adult Psychiatry in the Community	2
Seminar in Clinical Nursing	4
Master's Thesis Research and Direction	4
	10

Spring Quarter

	<i>credits</i>
Adult Psychiatry in the Community	4
Seminar in Clinical Nursing	4
Master's Thesis Research and Direction	4
	12

Nursing in Child Psychiatry

First Year

Fall Quarter

	<i>credits</i>
Psychiatric Nursing	4
Psychoanalytic Theory	4
Cognate	4
	12

Winter Quarter

	<i>credits</i>
Descriptive Statistics and Methods of Research in Health Science	4
Psychiatric Nursing	4
Human Development	2
	10

Spring Quarter

	<i>credits</i>
Inferential Statistics and Experimental Design in Health Science	4
Nursing in Child Psychiatry	4
Nursing in Child Psychiatry	2
Human Development	2
	12

Second Year

Fall Quarter

	<i>credits</i>
Nursing in Child Psychiatry	2
Nursing in Child Psychiatry	2
Cognate	8
	12

Winter Quarter

	<i>credits</i>
Nursing in Child Psychiatry	4
Field Study	3
Cognate	4
	11

Spring Quarter

	<i>credits</i>
Nursing in Child Psychiatry	2
Seminar in Clinical Nursing	4
Field Study	3
	9

Health Nurse Clinician (Medical-Surgical or Public Health Nursing)

First Year

Fall Quarter

	<i>credits</i>
Clinical Judgment in Nursing	5
Psychological Theory Applied to Health Care	4
Physiology	5
	14

Winter Quarter

	<i>credits</i>
Clinical Judgment in Nursing	5
Statistics	4
Physiology	5
	14

Spring Quarter

	<i>credits</i>
Clinical Judgment in Nursing	5
Research in Nursing	4
Cognate	4
	14

Second Year

Fall Quarter

	<i>credits</i>
Nurse Clinician Role: Care of Individual Family Member	4
Group Process and Group Dynamics	4
Study of Selected Problems in Medical-Surgical Nursing	4
Field Study	1
	13

Winter Quarter

	<i>credits</i>
Nurse Clinician Role: Care of Groups	4
Nurse Clinician Role in the Community	4
Study of Selected Problems in Medical-Surgical Nursing	4
Field Study	1
	13

Spring Quarter

	<i>credits</i>
Seminar in Clinical Nursing	4
Study of Selected Problems in Medical-Surgical Nursing	4
Field Study	4
	12

Nurse Clinician for Children

First Year

Fall Quarter

	<i>credits</i>
Orientation	(1)
Vertebrae Embryology	5
Nursing of Children and Adolescents I	3
Child Development I	3
	11

Winter Quarter

	<i>credits</i>
Nursing of Children and Adolescents II	5
Statistics	4
Child Development II	3
	12

Spring Quarter

	<i>credits</i>
Nursing of Children and Adolescents III	5
Research in Nursing	4
Human Heredity	3
	12

Second Year

Fall Quarter

	<i>credits</i>
Nurse Clinician Role: Care of Individual Family Member	3
Advanced Clinical Practice in Nursing	4
Research in Nursing	4
Family Sociology—Theories and Research	4
	15

Winter Quarter

	<i>credits</i>
Nurse Clinician Role in Care of Groups	4
Advanced Clinical Practice in Nursing	4
Evaluation of Health Care Programs	4
Research Practicum	3
	15

Spring Quarter

	<i>credits</i>
Seminar in Clinical Nursing	2
Advanced Clinical Practice in Nursing	4
Research Practicum	3
	9

POST-MASTER'S STUDY

Students planning post-master's study are advised to consult their adviser early in the program in order to facilitate the election of a sequence of courses appropriate to the field in which they intend to pursue further study.

DOCTORAL STUDY

Doctoral programs at Wayne State University are open to qualified nurses. Information about scholarship and fellowship funds for nurses engaged in doctoral study is available in the Office of Graduate Study in the Graduate Division. Faculty of the College will be glad to assist nurses with preliminary planning for a program of doctoral study and selection of specific courses relevant to a minor in nursing and to serve on students' dissertation committees. Nurses studying in other colleges of the University are invited to participate in research activities and programs of the College of Nursing.

MASTER'S DEGREE REQUIREMENTS

GRADUATE COURSES

Graduate work is classified either as research or course work (lecture, seminar, field), in which students meet as an assembled group. Master's level courses are numbered 0700 through 0899; selected courses numbered 0500 through 0699 carry either or both undergraduate and graduate credit.

Major Credits—Credits earned in nursing are designated as major credits. The essay, thesis, practicum, or field study and at least one-half of all other credits must be in the field of nursing.

Cognate Credits—Credits earned in other departments are classified as cognate. Election of cognate courses is encouraged to enable the applicant to broaden her program and fulfill her objective in graduate study. Cognate courses should be related to the major.

Directed Study—Directed study in the student's major field may be authorized provided the area of interest for the study is an integral part of her graduate program and is not covered by courses scheduled while the student is completing her course requirements. Before the student can register for directed study, she must prepare an outline of the study and obtain the approval of the College of Nursing Graduate Officer.

CANDIDACY

Candidacy is an advanced status which is recommended by the College of Nursing adviser upon evidence of the applicant's superior scholarship, appropriate personal qualities and promise of professional competence.

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

To be eligible for candidacy the student must file an officially approved *Plan of Work*. Students enrolled in Master's degree programs are expected to file the *Plan of Work* by the time twelve to eighteen graduate credits have been earned at Wayne State University. Candidacy must be authorized by the time eighteen graduate credits have been earned or subsequent registration will be denied. After the *Plan* has been filed subsequent major changes must be officially approved and recorded by the Graduate Office of the College of Nursing. The applicant must exercise primary responsibility for advancing her status to candidate.

PLAN OF WORK

Students elect Plan A or Plan B or Plan C.

In each Plan the *minimum* requirement for the degree of Master of Science in Nursing is forty-eight credits.

Plan A — Thirty-six credits in course work plus a thesis (for twelve credits).

Plan B — Forty-five credits in course work plus an essay (for three credits).

Plan C — Forty-eight credits in course work including a research practicum or a field study.

Exceptions to Plans A, B and C — Students who elect Nursing in Adult Psychiatry or Nursing in Child Psychiatry must complete a minimum of sixty-six credits. Students electing the Health Nurse Clinician Program are required to complete a minimum of sixty-six credits.

Students preparing for positions in community colleges or vocational education programs may need additional courses to meet certification requirements.

If the services of a faculty adviser are required beyond the quarters specified for thesis, essay, field study, or research practicum, the student will be required to register as an audit in the appropriate course until it is completed.

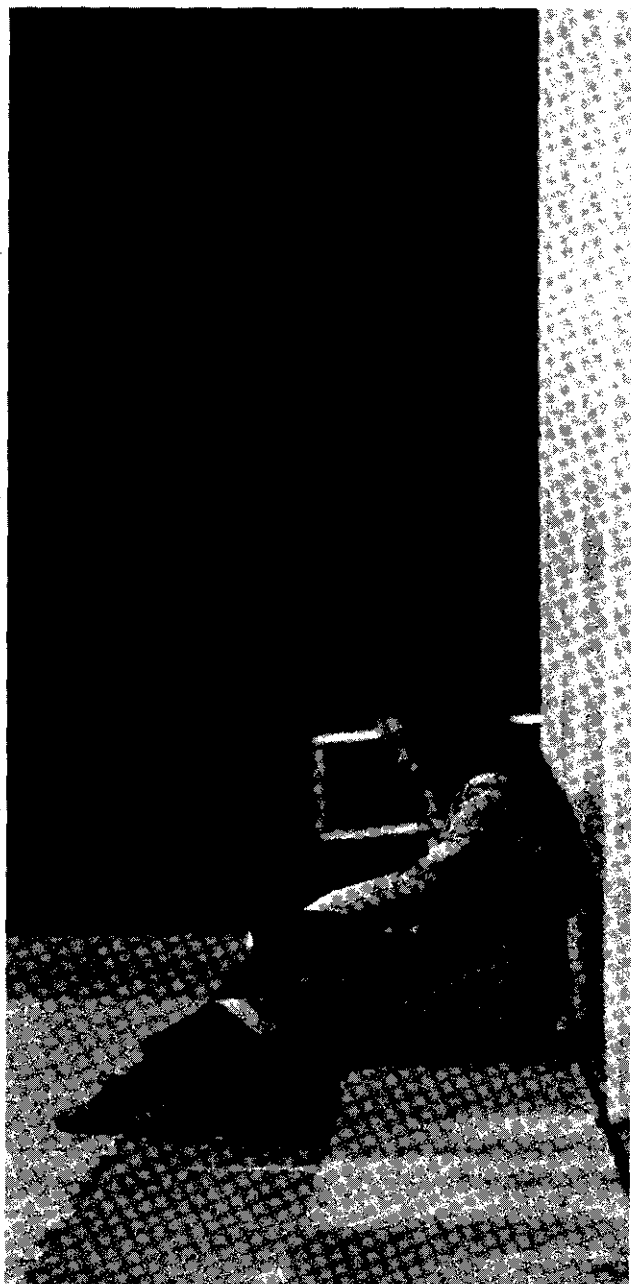
FINAL SEMINAR AND FINAL MASTER'S EXAMINATION

A candidate must satisfactorily complete a seminar numbered 0700 or above in her major field during the last one-third of her course work. Upon recommendation of the adviser, a final examination may be required. The purpose of the requirement is to give the candidate an opportunity to demon-

strate that she can organize, synthesize, and interpret knowledge gained from her course work, and can express herself clearly.

TRANSFER CREDITS

Transfer credits are generally limited to two courses (six semester credits or nine quarter credits). Grades for the courses must be B or better and certified as graduate-level credit on the official transcript. Transfer credits must have approval of the adviser and the graduate officer. In no instance will authorization be made to reduce the thirty-nine required residence credits. Action on a petition for transfer of credit is taken after the student has been approved for candidacy.



COURSES OF INSTRUCTION¹ (NUR)

Undergraduate Courses

All courses require consent of adviser.

0092. Orientation. 1 hour.

No degree credit.

0093. Orientation to the College of Nursing. 1 hour.

No degree credit.

0210. The Nurse and the Individual I. Cr. 3-6.

Offered for S and U grades only. Individual behavior in health and minor illness; nursing assessment and action.

0211. The Nurse and the Individual II. Cr. 3-6.

Prereq: NUR 0210. Offered for S and U grades only. Nursing individuals with uncomplicated physical and psychological problems.

0212. The Nurse and the Individual III. Cr. 2-6.

Prereq: NUR 0211. Offered for S and U grades only. Nursing individuals with psychological disturbances and uncomplicated physiological disturbances.

0220. Human Development and Human Services. Cr. 2.

Prereq: sophomore standing; consent of the program director of the College of Nursing. Offered for S and U grades only. Interdisciplinary seminar on the nature of man and resources for meeting his needs.

0226. Evaluation and Measurement in Nursing. Cr. 2.

Coreq: NUR 0210, 0211, 0212 or consent of undergraduate program director. Offered for S and U grades only. Descriptive and inferential statistics in the study and evaluation of nursing.

0301. Introduction to Nursing Science. Cr. 2-6.

Prereq. or coreq: NUR 0212. Scientific concepts of pathophysiology basic to understanding the nursing needs of sick people of all ages.

0311. The Nurse and the Family I. (5,15). Cr. 3-12.

Prereq: NUR 0212. Nursing in the maternity cycle and nursing of all age groups with acute and long term illnesses. The influence of health problems on the family during hospitalization and at home.

0312. The Nurse and the Family II. (5,15). Cr. 3-10.

Prereq: NUR 0311. Continuation of Nursing 0311.

0313. The Nurse and the Family III. (5,15). Cr. 3-12.

Prereq: NUR 0312. Continuation of Nursing 0312.

0326. Perspectives in Nursing I. Cr. 2.

Prereq: NUR 0212. Issues and trends in nursing from a historical and current viewpoint with implications for future practice.

0327. Perspectives in Nursing II. Cr. 2.

Prereq: NUR 0326. Continuation of Nursing 0326.

0420. Special Topics in the Care of the Physically Ill Adult. Cr. 2-6 (6 required).

Prereq: NUR 0313. Topics: (1) general medical-surgical patients, (2) patients in acute psychobiological crisis, (3) oncology patients, (4) older patients, (5) surgical patients.

0426. Research Process Applied to Health Problems. Cr. 2-6 (6 required).

Prereq: consent of program director and NUR 0313. The research process in relation to a health problem. Formulation of research questions relevant to health care.

0427. Special Topics in Maternal and Child Nursing. Cr. 2-6 (6 required).

Prereq: NUR 0313. Study of one of the following: drug dependency; parent education; neonatology; the sick child; maternal-child relationships; the well child; family planning; prenatal care, support in labor.

0428. Special Topics in Psychiatric Nursing. (1-3,3-9). Cr. 2-6 (6 required).

Prereq: NUR 0313. Study of the nursing process in a psychiatric nursing setting. Topics include theoretical framework and clinical experiences: social consciousness and mental health; human sexuality and mental health; the emotionally disturbed child adolescent; family therapy; individual therapy with adults; community mental health center nursing; crises intervention; psychological responses to physical illness.

0429. Special Topics in Public Health Nursing. Cr. 2-6 (6 required).

Prereq: NUR 0313. Topics include: health care organization; family health care; community health problems; consumer movement in health care; geriatrics and gerontology; family nursing practice; the research process in public health nursing and rehabilitative aspects of nursing.

0430. Process of Staff Education. Cr. 2-6 (Max. 6).

Open only to registered nurses. Concepts and trends pertinent to the development of sound and effective staff development programs in nursing service.

0432. Leadership in Nursing Service. Cr. 2-4 (Max. 4).

Open only to registered nurses. Principles of leadership as a basis for the development of skills and attitudes necessary for the management of nursing care.

0440. The Nurse and the Community I. Cr. 3-8.

Prereq: NUR 0313. The influence of community values, sanctions and dynamics on all dimensions of health and illness. The nurse as a practitioner and collaborator in interdisciplinary efforts to assist the individual, family and community to cope with complex health issues and to improve health services.

0441. The Nurse and the Community II. Cr. 3-8.

Prereq: NUR 0440. Continuation of Nursing 0440. Second course of a year-long sequence.

0442. The Nurse and the Community III. Cr. 3-8.

Prereq: NUR 0441. Continuation of Nursing 0441. Final quarter of a year-long course.

0450. Senior Seminar. Cr. 2-6 (6 required).

Prereq: consent of program director. Group development through study and experience in dynamics and process. Use of groups in patient care.

0490. Directed Study. Cr. 1-4.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0500. Problem Identification: Facts and Processes. Cr. 4.

Plan developed for investigation of problem of student's choice; criticism of examples of studies in nursing. This course may be elected by both undergraduate and graduate students.

0501. Nursing Patients in Acute Psycho-biological Crises. Cr. 4-8.

Prereq: consent of undergraduate program director. Directed study and practice in the nursing care of patients. The identification and solution of problems of nursing care and nursing administration.

Courses open only to special international students.

0091. Introduction to Nursing Education. 2 hours (Max. 8).

No degree credit. Relation of nursing education in the United States to the social order; nursing education in other countries. Topics coordinated with interests and needs of the students.

0454. Orientation to Public Health Nursing Practice. Cr. 2-10 (Max. 10).

Prereq. or coreq: NUR 0421 or equiv.

0465. Clinical Nursing. Cr. 2-16 (Max. 16).

Principles and practices of nursing in a selected clinical area.

0466. Field Practice in Clinical Nursing. Cr. 2-16 (Max. 16).

Prereq. or coreq: NUR 0465.

0467. Seminar in Nursing. Cr. 1-6.

0472. Field Practice in Teaching. Cr. 2-8 (Max. 8).

0475. Administration of Nursing Education Programs. Cr. 4-8 (Max. 8).

Introductory study of theories of administration with emphasis on their applicability to the organization of nursing education programs.

0476. Field Practice in Administration of Nursing Education Program. Cr. 4-16 (Max. 16).

Prereq. or coreq: NUR 0475.

0477. Curriculum Development in Nursing. Cr. 4.

Principles and processes of curriculum development.

0479. Teaching and Evaluation in Nursing. Cr. 4-6 (Max. 6).

Relationship of individual courses to the nursing school curriculum. Planning for clinical teaching and student evaluation.

0485. Administration of Nursing Services. Cr. 4.

Theories of administration and adaptations to institutional nursing services.

0486. Field Practice in Administration of Nursing Services. Cr. 4-8 (Max. 8).

Prereq. or coreq: NUR 0485.

0487. Personnel Development. Cr. 4.

Personnel functions in nursing service; emphasis on supervisory employee relations.

0488. Research in Nursing. Cr. 4.

Introduction to process of scientific inquiry and to literature of nursing research. Students will select a nursing problem and develop a design for its investigation.

Graduate Courses

Open only to nurses admitted to the Graduate Program.

All courses require consent of adviser.

Field practice courses are arranged on individual basis throughout the year.

0095. Orientation to the College of Nursing. 1 hour.

No degree credit. For master's students.

0524. Mental Retardation and the Nurse. Cr. 2-6 (6 required).

Prereq: consent of the undergraduate program director. Biological and social factors in the etiology and approaches to care of the mentally retarded in multidisciplinary programs in residential and community settings.

0603. Evaluation of Health Care Programs. Cr. 3-4.

Prereq: senior or graduate standing. Experience relevant to comprehension and analysis of health delivery system components; special emphasis is given to criteria identification.

0641. Seminar in Selected Readings in Psychiatric Nursing. Cr. 2.

Prereq: consent of instructor. Selected literature with an opportunity to discuss its relevance to trends and practice in psychiatric nursing.

0650. Descriptive Statistics and Methods of Research in Health Science. (4,0). Cr. 4.

Language and nature of research. Descriptive statistics and survey methods with illustrative material from epidemiology and health service research.

0651. Inferential Statistics and Experimental Design in Health Science. Cr. 4.

Prereq: NUR 0650 or equiv. Problems in design of experiments, sampling, the logic of statistical inference, chi square, analysis of variance, correlational techniques and selected non-parametric methods.

0701. Curriculum Development in Nursing. Cr. 4.

Principles of curriculum development and their application to constructing and revising the nursing school curriculum.

0702. Research in Nursing. Cr. 4.

Prereq. or coreq: introduction to statistics. Introduction to process of scientific inquiry and to literature of nursing research. Student will select a nursing problem and develop a design for its investigation.

0703. Teaching and Evaluation in Nursing. Cr. 4.

Prereq: NUR 0701 or consent of instructor. Relationship of individual courses to the nursing school curriculum. Planning for clinical teaching and student evaluation.

0704. The Application of Psychological Theories to Health Care. (3-4,0). Cr. 3-4.

A seminar in the processes and consequences of various theoretical positions in psychology about human behavior.

0711. Adult Clinical Nursing I. Cr. 4-8.

Various perspectives on health and disease. Application of scientific method to nursing practice in care of the adult with existing or potential impairment of self-help ability.

0712. Field Practice in Adult Clinical Nursing. Cr. 4-8.
Prereq: NUR 0711.

0713. Study of Selected Problems in Medical-Surgical Nursing. Cr. 2-16.
Prereq. or coreq: NUR 0712 and consent of instructor.

0714. Adult Clinical Nursing II. Cr. 4-8.
Prereq: NUR 0711. Continuation of Nursing 0711.

0715. Clinical Judgment in Nursing. Cr. 4-16 (Max. 16).
Prereq: NUR 0712 and consent of adviser; coreq: NUR 0716. Assessment of individuals to determine health-illness states, conditions and situations.

0716. Adult Clinical Nursing III. Cr. 3-6.
Prereq: consent of adviser; coreq: NUR 0715. Study and use of nursing; psychological, social and cultural constructs for nursing intervention directed toward attainment, improvement or maintenance of health.

0717. Nurse Clinician Role: Care of Individual Family Member. Cr. 3-6.
Prereq: NUR 0716, and consent of adviser. Nursing intervention in the care of individuals as members of their nuclear families.

0718. Nurse Clinician Role in Care of Groups. Cr. 4-8.
Prereq: NUR 0717; coreq: NUR 0719 and consent of adviser. Analysis of health nurse clinician relationship to special groups of patients and the physicians associated with their program of care.

0719. Nurse Clinician Role in the Community. Cr. 4-8.
Coreq: NUR 0718 and consent of adviser. Analysis of selected major legislative, political, social and economic trends and issues influencing community health using an epidemiological approach.

0720. Group Process and Group Dynamics. Cr. 4-6.
Prereq: consent of instructor. Required for medical-surgical and public health nursing majors. Group dynamics and group processes; relationships and application to nursing practice.

0721. Maternity Nursing I. Cr. 4.
Prereq. or coreq: BIO 0507 or 0561. Exploration and analysis of social changes and trends that influence maternal and newborn infant care. Opportunity to select, analyze and solve maternal and newborn infant nursing care problems.

0722. Maternity Nursing II. Cr. 4-8 (Max. 8).
Prereq: NUR 0721; prereq. or coreq: BIO 0507 or 0561. Continuation of Nursing 0721.

0731. Nursing of Children and Adolescents I. Cr. 3.
Analyses of health care problems of neonates and infants; physical and psycho-social assessment of neonates and infants to explore modes of nursing intervention.

0732. Nursing of Children and Adolescents II. Cr. 3-8.
Analyses of health care problems of young children; physical and psycho-social assessment of young children to explore modes of nursing intervention. Application of role theories, systems theories and theories of planned change to nursing of children and their families.

0733. Nursing of Children and Adolescents III. Cr. 5.
Open only to students enrolled in Pediatrics Master's Program.

Analyses of health care problems of children and adolescents; physical and psycho-social assessment of children and adolescents to explore modes of nursing intervention in a variety of settings.

0741. Psychiatric Nursing. Cr. 4.
Study and directed experience in the nursing care of selected psychiatric patients.

0742. Psychiatric Nursing. Cr. 2-4 (4 required).
Prereq: NUR 0741. Continuation of Nursing 0741.

0743. Nursing in Adult Psychiatry. Cr. 4.
Prereq: NUR 0742. Complex problems in nursing care of groups of psychiatric patients. Directed field practice.

0744. Nursing in Adult Psychiatry. Cr. 2-4 (Max. 4).
Prereq. or coreq: NUR 0743. Continuation of Nursing 0743.

0745. Adult Psychiatry in the Community. Cr. 2-8.
Prereq: NUR 0744. Special problems.

0746. Nursing in Child Psychiatry. Cr. 4.
Prereq: NUR 0742. Nursing problems of emotionally disturbed children.

0747. Nursing in Child Psychiatry. Cr. 2-4.
Prereq: NUR 0746. Study and directed field experience in nursing care of groups of emotionally disturbed children. Special problems.

0748. Nursing in Child Psychiatry. Cr. 2-8 (Max. 8).
Prereq: NUR 0747. Continuation of Nursing 0747.

0750. Health Care Organization (S W 0808). Cr. 2-12.
(Public Health Nursing students 12 required, all others 8 required).
Analyses of American health care system, related social policy and political processes pertinent to organization, delivery, financing, and evaluation of services; in-depth analysis of one subsystem of health service.

0751. Public Health Nursing I. Cr. 4-6.
Advanced practice in the care of individuals and families; community settings.

0752. Public Health Nursing II. Cr. 4-6.
Prereq: NUR 0751. Continuation of Nursing 0751.

0761. Organization and Administration of the Nursing Service. Cr. 4.
Theories of administration and application to the nursing service. Philosophy, organization and functions of the modern nursing service.

0762. Field Practice in Administration of the Nursing Service. Cr. 4-8 (Max. 8).
Prereq. or coreq: NUR 0761.

0763. Personnel Development. Cr. 4.
Personnel function in nursing service; emphasis on supervisor-employee relations.

0771. Administration of Nursing Education Programs. Cr. 4.
Prereq. or coreq: NUR 0701 and 0703. Current theories and concepts of administration and their relevance to organization of nursing education programs.

0772. Field Practice in Administration of Nursing Education Programs. Cr. 4.

Prereq: NUR 0771. Observation and participation in selected nursing education programs.

0782. Field Practice in Clinical Teaching. Cr. 4-8 (Max. 8).

0785. Seminar in Clinical Nursing. Cr. 2-4 (4 required).

Exploration of various issues affecting the role and function of the clinical nurse specialist.

0790. Directed Study in Nursing. Cr. 2-12.

Prereq: consent of graduate officer.

0795. Field Study. Cr. 1-6 (Max. 6).

Prereq: consent of adviser and instructor. Study of a nursing situation or problem illustrating the application of relevant theories.

0796. Research Practicum. Cr. 2-9 (6 required).

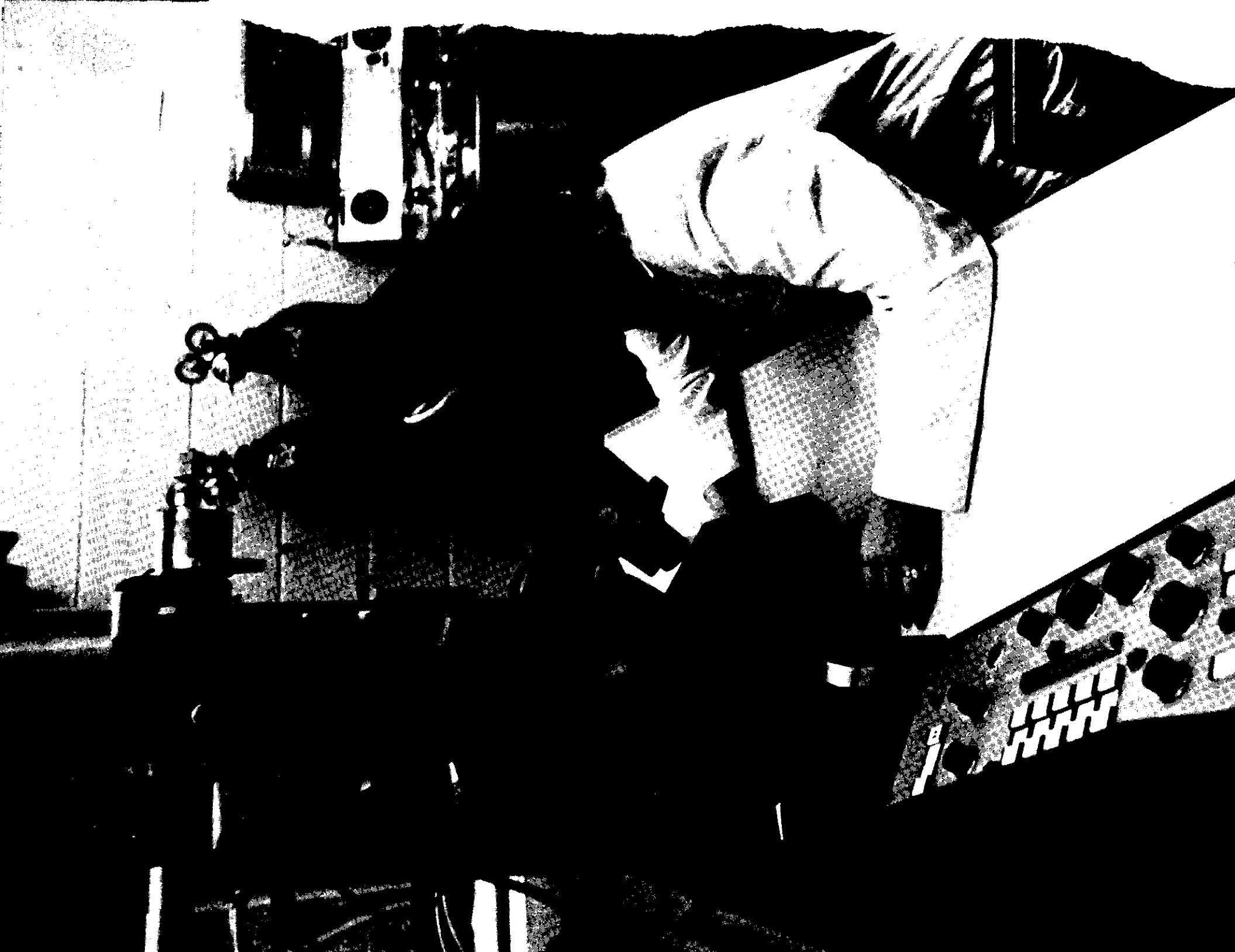
Prereq: NUR 0650 and 0651 or 0702; consent of adviser and instructor. Focus on one aspect of a research project and writing of a research paper.

0797. Seminar in Administration in Nursing Service. Cr. 3.

0798. Seminar in Nursing Education. Cr. 3.

0799. Master's Essay Direction. Cr. 3.

0899. Master's Thesis Research and Direction. Cr. 3-12 (12 required).



**College of
Pharmacy and Allied Health Professions**



Foreword

The College of Pharmacy and Allied Health Professions is a unit of the University formed by the administrative affiliation of the College of Pharmacy and the Division of Allied Health of the School of Medicine.

This organization joins the administration of the programs of the former two units under the Dean of the College of Pharmacy and Allied Health Professions, with Associate Deans for Pharmacy and for the Allied Health Professions, respectively. The academic programs of the two units maintain autonomous admission requirements, curricula, degree requirements and academic procedures.

In addition to foreseeing administrative advantages, the Administration of Wayne State University is convinced that creation of the College of Pharmacy and Allied Health Professions promotes the best interests of professional education in the units involved, in their Faculties and students, and in the University. The affiliation of pharmacy with the allied health programs is a natural step in creating an environment in which health professions students will undergo clinical practicums together, interact effectively, and learn together.

FACULTY OF PHARMACY

HISTORY

The Faculty of Pharmacy in the College of Pharmacy and Allied Health Professions traces its past through two pharmacy colleges.

In 1890, the Detroit College of Pharmacy was founded as a program in the Detroit Medical College, the forerunner of the Wayne State University School of Medicine. The Detroit College of Pharmacy later separated from its parent institution, operated independently for two years, and in 1907, affiliated with the Detroit Institute of Technology.

In response to the urging of Detroit area pharmacists, and developing from the six-year course in pharmacy established at Cass Technical High School two years earlier, a new College of Pharmacy was organized by the Detroit Board of Education in 1924. This College of Pharmacy and the Detroit Board of Education's Colleges of Medicine, Education, Liberal Arts, Engineering and Graduate School were united in 1933 into a university called the Colleges of the City of Detroit and named Wayne University in 1934. The College of Pharmacy was housed on Mullet Street in downtown Detroit from 1935 to 1952, at which time it moved to Old Main on the central campus of Wayne University. In 1957, one year after Wayne University became Wayne State University, the College of Pharmacy at the Detroit Institute of Technology joined the College of Pharmacy at Wayne by merging into Wayne State University. Thus, the two colleges of pharmacy through which the past is traced were united.

Today, the Faculty of Pharmacy is a component of the College of Pharmacy and Allied Health Professions. Located on the main campus of Wayne State University, it offers a modern program of professional pharmaceutical education from the Shapero Hall of Pharmacy.

THE PROFESSION OF PHARMACY

The practice of pharmacy is a diverse and challenging health-care profession of much broader scope than could possibly be realized from casual contact with any particular place in which a pharmacist may practice his profession.

One of the great appeals of the profession of pharmacy is the variety of positions available to pharmacists. No community pharmacy, hospital or related institution, industrial or distributive complex, governmental or private agency, laboratory, or other single place of practice for pharmacists represents total pharmaceutical activity.

The professional responsibilities of pharmacists include activities involved in the development, preparation, storage, and distribution of drugs. Among these activities are: (1) the collection and production of raw materials; (2) the identification and evaluation by assay of such raw materials; (3) the determination of a medicinal agent's biological activity, its

limitations, and standardization; (4) the control, by appropriate supervision and analytical techniques, of manufacturing operations; (5) the adequate preservation of drugs, including the selection and evaluation of containers, and the determination of the proper storage conditions and the effects of deterioration; (6) collaboration in the establishment of the therapeutic worth of a drug, including the selection of the most appropriate form for its administration or use; (7) quality control during distribution, including the enforcement of drug laws; (8) the compounding or dispensing of prescription orders; and (9) serving as a source of professional and public health information for the health-care team and the public.

No single pharmacist today engages in all of the above activities, but every pharmacist is involved with one or more of them. Practitioners in the profession are involved with drugs, patient care, and community health, and pharmacists function effectively with other persons or groups similarly concerned.

The great majority of students who complete the undergraduate curriculum in pharmacy enter community or hospital practice. Included in the activities of pharmacists are such responsibilities as: (1) dispensing prescription medication and aiding in selection or use of other health-care articles; (2) acting as an informed and readily accessible adviser to health-service personnel and the health-seeking public; (3) contributing to the continuing improvement in professional pharmaceutical service and sharing such contributions with other professionals; (4) assisting in training manpower for the profession of pharmacy; and (5) evaluating proposals for social and political improvement and actively supporting those approved by one's informed judgment.

The curriculum in pharmacy also prepares students to enter other important areas of professional practice — including industrial and governmental practice — or to pursue graduate study and research.

The Faculty of Pharmacy works energetically to ensure that its students acquire the education to practice the profession of pharmacy, develop the desire and ability to keep abreast of growing knowledge in the healing arts or health sciences, make contributions to their profession which they gladly share with others, and have a willingness to accept the responsibility of wise community leadership.

Because the profession of pharmacy holds out opportunities of almost endless variety, the Faculty is dedicated to preparing its students for broad practice, rather than preparing them for a single place of practice within pharmacy.

Pharmacy is a health-care profession as old as yesterday and as new as tomorrow. It is a profession that draws from the past, functions in the present, and builds for the future.

REGISTERED PHARMACIST LICENSURE

Licensure as a registered pharmacist is available to graduates of the pharmacy curriculum of the College of Pharmacy and Allied Health Professions, either by examination or by reciprocity, in all states and in the District of Columbia.

Michigan law authorizes registration as a pharmacist for every pharmacy graduate who:

- (a) is a citizen of the United States or has applied for citizenship;
- (b) is at least twenty-one years of age;
- (c) is of good moral character;
- (d) is graduated with a degree of Bachelor of Science in Pharmacy from the College of Pharmacy and Allied Health Professions;
- (e) has completed subsequent to completion of two academic years of study in an accredited college or university, at least one year of practical experience as an intern under the supervision of a registered pharmacist in a pharmacy approved by the state board of pharmacy for such purposes, with at least six months of such practical experience acquired subsequent to graduation from the College.
- (f) has submitted an application for examination to the state board of pharmacy setting by affidavit his or her qualifications as required by subdivisions (a), (b), and (c);
- (g) has passed an examination in pharmacy satisfactory to the state board of pharmacy subsequent to completion of intern training; and
- (h) has paid an examination fee and certificate fee of such amount as fixed by the state board of pharmacy.

INTERNSHIP

Internship is an educational program of professional practical experience beginning after an intern has satisfactorily completed two academic years of study in an accredited college or university, and comprising one year under the supervision of a preceptor in a pharmacy approved by the Michigan Board of Pharmacy for such purposes, with at least six months of such internship completed subsequent to graduation from an accredited school or college of pharmacy.

The following requirements are stated in the Michigan Pharmacy Practice Act under the section on "Interns":

- (1) A person who desires to fulfill the practical experience requirements for registration as a pharmacist and who has satisfactorily completed two academic years of study in an accredited college or university shall apply to the board for registration as an intern. The board shall furnish proper forms for this purpose, and issue a certificate of registration as a registered intern to a qualified applicant upon the payment of \$3.00. The certificate of registration shall remain valid while the applicant is actively pursuing a degree in an accredited school or college of pharmacy and for not to exceed three years from the date of graduation of the applicant from such a school or college.
- (2) To fulfill the practical experience requirement, the period shall be completed from the date of registration as an intern. In computing the period of service as an intern, forty hours shall be construed as one week's time, but hours of service in excess of forty hours in one calendar week shall not be computed.
- (3) The board may require an examination to establish the educational qualifications of an applicant for internship.
- (4) In order to train an intern, a pharmacist shall apply for and be certified by the board as a preceptor who meets the qualifications established by the rule. The preceptor certificate shall be issued annually for a fee of \$5.00 and may be revoked by the board for

failure to supervise properly the internship program prescribed by the board.

- (5) The pharmacy in which the intern is employed shall meet the qualifications for internship training established by board rules and shall be certified annually by the board as an approved pharmacy for internship training. Each approved pharmacy shall designate a preceptor who is in charge of its internship program and who is responsible for providing adequate personal supervision of its interns.

Additionally, the administrative rules of the Michigan Board of Pharmacy include the following internship requirements:

Internship, Duties of Interns

- (a) An intern shall not take his training at the same time he is attending a college.
- (b) He shall register and pay the statutory fee.
- (c) He shall keep abreast of current developments in the pharmacy profession. This may be done by attending lectures, meetings of pharmaceutical associations and scientific societies and reading pharmaceutical journals.
- (d) He shall not be left in charge of a pharmacy at any time. Violation of this subrule will result in citation of the intern and pharmacist involved, before the board, for such action as the board may desire after the hearing.
- (e) He shall be trained as prescribed in the preceptor-intern guide of the board of pharmacy in the following:
 - (1) Administration and management of the pharmacy.
 - (2) Pharmaco-legal requirements.
 - (3) Drug distribution, use and control.
 - (4) Ethical and professional responsibilities.
 - (5) Pharmacist's health and information services.
- (f) An intern who is now completing internship training under this rule before its amendment by the board in 1969 continues to be governed by such rule and is not required to comply with the amended and new internship rules.

Internship, Approved Pharmacies

- (a) A certificate of registration as an approved pharmacy for internship training shall be issued annually to a pharmacy which has complied with the other provisions of this rule.
- (b) The pharmacy shall designate a preceptor who is in charge of its internship program and who is responsible for providing adequate personal supervision of its interns.
- (c) It shall be kept in a sanitary, orderly and clean condition.
- (d) It shall maintain a reference library exceeding **minimum requirements** including subscriptions to professional publications and those dealing with pharmaceutical products as indicated in the preceptor-intern guide of the board of pharmacy.
- (e) It shall maintain a satisfactory rating on inspection reports conducted by the drug inspectors of the board.
- (f) Its license as a pharmacy has not been suspended or revoked within five years of its application for registration as an approved pharmacy.

(g) The board may suspend or revoke a certificate of registration as an approved pharmacy for internship training after a hearing by the board on proof of failure to comply with pharmacy statutes or rules.

Internship, Preceptors

(a) In order to train an intern, a pharmacist shall apply for and be certified by the board of pharmacy as a preceptor. A preceptor certificate shall be issued on payment of the statutory fee and renewed each year if the preceptor has complied with the other provisions of this rule.

(b) The preceptor shall have practiced as a registered pharmacist for at least two years before beginning supervision of an intern.

(c) He shall immediately notify the board when he changes his place of practice.

(d) He shall have subscribed to the principles of the code of ethics.

(e) He shall keep abreast of current developments in the profession by attending lectures, pharmaceutical association and scientific society meetings and reading current pharmaceutical journals.

(f) He shall attend at least one annual internship training conference as required by the board.

(g) He shall be responsible for arranging the intern's training in any areas of practice lacking in the respective approved pharmacy, but deemed necessary by the board.

(h) He shall submit progress reports provided by the board that the internship program, as outlined in the preceptor-intern guide of the board of pharmacy, has been fulfilled, which reports shall be signed by the intern and preceptor.

(i) He shall submit to the board affidavits on forms furnished by the board, attesting to completion of the intern's required training periods, and shall attest to the qualifications and competency of the intern under his supervision and direction at the time of application for licensure of the intern by the board as a registered pharmacist.

(j) He has not been and shall not be convicted of a violation of a federal, state or local law or ordinance relating to pharmacy or violation of the profession's code of ethics within five years of the application for certification as a preceptor.

(k) The board may deny, suspend or revoke a preceptor certificate for failure of the preceptor to supervise properly the internship program prescribed by the board or for violation of a federal, state or local law, ordinance or rule relating to pharmacy.

EXPERIMENTAL CLINICAL INTERNSHIP PROGRAM

In order to provide the pharmacy student with training in the application of the scientific knowledge he has gained throughout the pharmacy curriculum, an elective sequence of courses, Pharmacy 0672, 0673, and 0674 has been made available to graduating senior students. This nine quarter credit experimental sequence provides the student with the opportunity to apply his pharmaceutical training in a variety of patient-care settings in several community and hospital locations within the metropolitan Detroit area. Each student electing this sequence will be individually assigned to twelve to fourteen types of experience on a rotating schedule. Experiences

require a minimum of fourteen hours per week for a total time allocation in excess of 400 hours for the academic year. The student is expected to supply his own transportation and professional liability insurance.

For additional information regarding internship, examination or licensure in Michigan, write: The Executive Secretary, Michigan State Board of Pharmacy, 1033 S. Washington Avenue, Lansing Michigan 48926.

Reciprocity information is available from: The Secretary, National Association of Boards of Pharmacy, 77 W. Washington Street, Chicago, Illinois 60602.

ACCREDITATION

Wayne State University is accredited by the North Central Association.

The Wayne State University College of Pharmacy and Allied Health Professions is a member of the American Association of Colleges of Pharmacy and is accredited by the American Council on Pharmaceutical Education.

The College is recognized by all state boards of pharmacy. By completion of the pharmacy curriculum, its graduates fulfill the education requirements for examination and licensure as pharmacists in every state in the country.



UNDERGRADUATE PROGRAM

The minimum undergraduate program of all nationally accredited colleges of pharmacy is one of five *academic* years. Students may attend non-pharmacy colleges (such as the University's College of Liberal Arts, a community college, etc.) for one or two years and then transfer to the College of Pharmacy and Allied Health Professions.

Consequently, candidates for the degree of Bachelor of Science (Pharmacy) may either enroll in the College for the entire program, or after completing one or two years of acceptable studies elsewhere, enroll in the College for the remainder of their work.

GRADUATE PROFESSIONAL PROGRAM

A graduate professional program leading to the degree of Doctor of Pharmacy is offered to qualified students. The Doctor of Pharmacy program is designed to develop clinical pharmacy specialists. See page 478.

For further information on the Doctor of Pharmacy program, address: Chairman, Admissions Committee for the Doctor of Pharmacy program, College of Pharmacy and Allied Health Professions, Wayne State University, Detroit, Michigan 48202.

GRADUATE PROGRAMS

Master of Science

A graduate program is offered leading to the degree of Master of Science with majors in hospital pharmacy, pharmaceutical administration, pharmaceutical chemistry, pharmaceutics, pharmacogeny, and pharmacology. See page 480.

For further information on the Master of Science program, address: The Graduate Officer, College of Pharmacy and Allied Health Professions, Wayne State University, Detroit, Michigan 48202.

Doctor of Philosophy

The Doctor of Philosophy program is designed to offer opportunity for advanced study and research to persons who have demonstrated superior scholarship in the basic sciences of pharmacy. It is intended to train individuals for careers in pharmaceutical sciences, research, and education. See page 479.

The program of courses for the doctor's degree and general plan for dissertation research will be arranged with the candidate by a committee of advisers.

For further information on the Doctor of Philosophy program, address: The Dean, College of Pharmacy and Allied Health Professions, Wayne State University, Detroit, Michigan 48202.

STUDENT PROFESSIONAL ACTIVITIES

The Student Advisory Board (SAB) is a representative organization of the student body of the Faculty of Pharmacy, organized for the purpose of advancing the College, the University, and the profession of pharmacy. Thus, the SAB, and the following organizations or functions which are related to the pharmacy instructional program, are a basis for student activities and an integral part of the total educational offering in pharmacy.

The Drug Abuse Education Committee coordinates the activities of both students and faculty in providing drug abuse education throughout the greater metropolitan community.

A student chapter of the American Pharmaceutical Association (APhA), the national professional society of pharmacists, was organized at the College in 1947. In 1961, members of the APhA chapter voted to affiliate with the Michigan Pharmaceutical Association (MPA) in a joint student-membership arrangement. Active participation in the joint APhA-MPA chapter and its varied programs of interest is encouraged.

The Alpha Xi Chapter of Rho Chi, the national honor society of pharmacy, elects students to membership who attain the required academic qualifications and who are recommended by the faculty.

The following national professional pharmaceutical fraternities maintain active chapters at the College: Kappa Psi, Phi Delta Chi, Rho Pi Phi, and Lambda Kappa Sigma.

The Wayne Pharmic is a student publication of the College. Through this publication, students have their own medium for reporting about College events, activities in the pharmaceutical and allied health professions, as well as social, cultural, scientific and professional matters of particular interest to students and alumni.

As part of the regular pharmacy curriculum and program requirements, inspection trips to pharmaceutical manufacturers are scheduled. The student should include in his school budget the sum of money required to participate.

PHARMACY ALUMNI ASSOCIATION

The Pharmacy Alumni Association was established for the purpose of maintaining a close relationship between the Faculty of Pharmacy and its former students. The alumni are graduates and former students of the colleges of pharmacy which were merged to form the Faculty of Pharmacy of the Wayne State University College of Pharmacy and Allied Health Professions.

The Alumni Association contributes to the development and general welfare of the Faculty of Pharmacy, its students, and the profession of pharmacy. The Association very actively cooperates with the Faculty in fostering various annual and special events of interest to the students, faculty, and alumni.

The Pharmacy Newsletter is a publication of the Alumni Association and the Faculty of Pharmacy. Through this publication, the Association and the Faculty of Pharmacy disseminate

inate information and report on the special events and annual programs of interest to the students, faculty, and alumni.

Members of the Board of Directors are: (terms expire 1974) Jerry Efros, Frank Facione, Gary Helper (Treasurer), Elaine Marshall, Maxwell Miller (President), Duane Pavey (First Vice-President), John Radtke, Paul Sirois, Raymond Stemplewski, Joseph Wolf; (terms expire 1975) Paul E. Anderson, Sidney Bluestone, Marilyn Friedberg (Secretary), Joseph Grimaudo (Second Vice-President), Arthur Koorhan, Carl J. Maness, Edward Nycz, Nathan Pack, Ronald Ponichter, William R. Smith; (terms expire 1976) Gerald Bodendistel, Philip Bolton, James Joseph, Arthur Kalem, Julianne Lentz, Lawrence Malicze, Percy McClain, Judy Slining, Ira Smith, Joseph Stark.

AIMS AND OBJECTIVES

Wayne State University, with its location in the heart of the principal metropolitan area in the State, is committed to the achievements of three broad goals, consistent with its status as a major, complex, state-supported institution of higher education:

1. To provide effective programs of instruction at the undergraduate, professional, and graduate levels.
2. To promote research programs of excellence in both basic and applied fields.
3. To achieve optimum interaction of the University and the community in common educational, research, and community development interests.

The Faculty of Pharmacy is committed to the goals of Wayne State University. Within these goals, the Faculty has the following aims and objectives:

1. The preparation of pharmaceutical practitioners who, through an undergraduate program consisting of two years of liberal education and three years of professional education in humanistic, scientific, and clinical areas leading to the degree of Bachelor of Science in Pharmacy, will be prepared to practice a multifaceted profession in one of its numerous settings, including the community, medical complex, other health-care facilities, governmental and educational agencies, and research and industrial establishments.
2. The preparation of clinical pharmacy specialists, through a graduate professional program leading to the degree of Doctor of Pharmacy, who, as integral members of the health-care team in both community and institutional pharmacy practice, will fill the vitally needed role of drug therapy consultant on the health-care team, and who will serve as members of the clinical faculty of colleges of pharmacy.
3. The preparation of individuals for administrative, scientific, professional, and educational careers in private and public agencies and institutions concerned with health care through graduate scientific and professional educational programs and individual research opportunities in the various areas of pharmacy leading to the degrees of Master of Science and Doctor of Philosophy.

4. The development of both basic and applied research programs in the pharmaceutical sciences and professional practice.

5. Increasing pharmaceutical manpower supply by designing effective recruiting programs for students, including special programs for disadvantaged students, and by increasing professional efficiency by providing contemporary professional instruction to practicing pharmacists through continuing education programs.

6. Participation in community service programs by providing educational and consultative services to the public and public agencies on matters pertaining to drug use and abuse and by cooperating with pharmaceutical organizations and agencies in programs concerning professional matters including those of internship and licensure.

STUDENT SERVICES

Assistant to the Dean for Student Services

309 Shapero Hall; 577-3758

This office is responsible for all academic and program advising and for military and veterans counseling for pharmacy students. Students who have questions relative to their curriculum or program should consult with an adviser. In addition, this office seeks to coordinate the scheduling of student activities and space utilization within Shapero Hall.

MILITARY AND VETERANS AFFAIRS

For information on the University Office of Military and Veterans Affairs, see page 30.

To have their student status reported to their local boards, pharmacy students should contact the Military and Veterans Counselor of the College of Pharmacy, 309 Shapero Hall, telephone 577-3758.

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 6. The following additions and amendments pertain to pharmacy students.

The undergraduate program in pharmacy leading to the degree of Bachelor of Science in Pharmacy is designed to prepare general practitioners for broad practice, rather than preparing them for a single place of practice within pharmacy.

Admission to the University is effected through the University Admissions Office. The Office of Admissions for Wayne State University is located in Room 116, Administrative Services Building, 5950 Cass Avenue, Detroit, Michigan 48202. Telephone 313-577-3560. Admissions counselors are available in the Office of Admissions for personal conferences to aid the prospective student. The Faculty of Pharmacy has final jurisdiction in the selection of its students.

The Faculty of Pharmacy identifies students as being in either a *general* or *professional* curriculum. Students in a general curriculum are usually engaged in a program of study similar to that of the first year curriculum outlined on p. 477. After acceptable progress has been established in a general curriculum, students are considered for acceptance into the professional curriculum in pharmacy.

It should be emphasized that enrollment as a general curriculum student is primarily for purposes of identification, counseling, and participation in student professional activities. Full recognition as a degree candidate occurs only upon acceptance into the professional curriculum.

GENERAL CURRICULUM

Application

An official *Application for Undergraduate Admission* with a \$10.00 Application Fee **must** be filed in the Office of Admissions before any consideration regarding admissibility can begin. The application blank may be secured from the Office of Admissions. High school students in Michigan can secure an application from their high school counselor.

Application Deadline

In order to be considered for admission, applicants must have their completed application, including transcripts and any other records necessary for admissions consideration, in the Office of Admissions on or before the following dates for the quarter indicated:

Fall Quarter	.....August 15	Spring Quarter	.....March 1
Winter Quarter	.....December 1	Summer Quarter	.....June 1

Students transferring from within or outside the University who anticipate admission to the professional curriculum (see

page 478), granted only in the fall quarter, should have their application *completed no later than June 15*.

Recommended High School Preparation

Fifteen units of high school work are required for admission. The following units are recommended:

English	.....	3-4 units
Foreign Language	.....	1-2 units
Mathematics	.....	3-4 units
Laboratory Science	.....	2-3 units
Social Studies and History	.....	2 units

Students will find it advantageous to have had at least one year each of algebra, biology, chemistry, and physics. English, mathematics, and science are strongly recommended.

University Placement Tests

1. Placement tests offer the student an opportunity to demonstrate his ability to succeed in specified elementary courses and thereby replace them with approved electives.
2. These tests are required for registration in Chemistry 0107, English 0150, and Mathematics 0180 or 0211.
3. Placement tests are scheduled by the Admissions Office for several dates prior to registration and should be taken by the student at the earliest possible time in order to assure that results will be available before registration.

Readmission Following an Interruption in Residence

Undergraduate students whose attendance in the pharmacy curriculum has been interrupted for two or more consecutive quarters are required to apply at the Office of the Dean for readmission. Deadline dates for such applications are the same as those for regular admission to the University.

PROFESSIONAL CURRICULUM

Enrollment in the professional pharmacy curriculum is limited to applicants who have met the general University admissions requirements and present evidence of professional admissibility and promise of academic and professional competence. The Academic and Professional Progress Committee of the Faculty of Pharmacy will consider the academic record together with the applicant's aptitude and personal qualifications for the study and practice of pharmacy. A personal interview and an aptitude test or other conditions may be required. Admission to the professional curriculum is granted only for the fall quarter.

Undergraduate courses offered in pharmacy are limited to those students admitted to the professional curriculum, with the exception of Pharmaceutics 0200, Perspectives in Drug Abuse, and Pharmacy 0300, Introduction to the Pharmaceutical Sciences and Pharmacy 0310, Professional Orientation.

The latter two courses are limited to students in the general pharmacy curriculum.

Students will be considered for admission to the professional pharmacy curriculum from a college either within Wayne State University or outside the University, or from the general pharmacy curriculum, upon completion of each of the following minimum academic requirements:

1. Eighty-four quarter credits.
2. Completion of the following courses or their equivalents with a 2.0 honor point average:

Biology 0103	.....	Introductory Biology
Biology 0160	.....	Animal Biology
Biology 0220	.....	Introductory Microbiology
Chemistry 0107, 0108	.....	Principles of Chemistry I, II
Chemistry 0110	.....	General Analytical Chemistry
Chemistry 0224, 0226	.....	Organic Chemistry I, II
Chemistry 0227	.....	Organic Chemistry Laboratory
Economics 0101	.....	Survey of Economics I
English 0150	.....	Freshman Literature and Composition
One English "0200" level elective		
Mathematics 0211	.....	Calculus of Functions of One Variable I
Physics 0213-0215	.....	General Physics
Political Science 0101	.....	Introduction to American Government

3. A cumulative honor point average of 2.0.

The College of Pharmacy and Allied Health Professions is limited in the number of pharmacy students who can be accommodated in the professional curriculum. If, for the fall quarter 1974, the number of applicants exceeds the number of places available, students will be admitted in the following order:

1. Students in the general pharmacy curriculum of the college, ranked by honor point average in the required courses listed above.
2. Transfer students whose Admission Action or Application for Change of College shows a decision date prior to June 15, ranked by honor point average in the required courses listed above.
3. Transfer students whose Admission Action or Application for Change of College shows a decision date after June 15, ranked by honor point average in the required courses listed above.

This procedure is subject to change for the fall quarter 1975. Applicants who cannot be accommodated due to space limitations will be placed on a waiting list, ranked in the above order. Accepted students who fail to register during the early registration period will relinquish their places to applicants on the waiting list. Applicants not admitted to the professional curriculum may re-apply the following year.

POST DEGREE STUDENTS

Students having at least a baccalaureate degree from this or another college of pharmacy may be admitted as post degree

students. This rank permits registration in pharmacy courses subject to the approval of the appropriate adviser in pharmacy. Students wishing graduate credit are cautioned not to enroll post-degree. This is an undergraduate classification in which graduate credit may not be earned. Post-degree credits cannot be converted to graduate credit.

UNDERGRADUATE DEGREE REQUIREMENTS

The following general requirements must be satisfied for the degree of Bachelor of Science in Pharmacy:

Residence — a student must have devoted at least three academic years to resident study in a recognized college or colleges of pharmacy, of which the final professional year and last forty-five credits must be taken at the Wayne State University College of Pharmacy and Allied Health Professions.

Honor Point Average — a student must maintain an honor point average of at least 2.0 in total residence credit and maintain an honor point average of not less than 2.0 in all pharmacy courses. In addition, if a grade less than C is received for a course required in the last professional year, upon recommendation by the Academic and Professional Progress Committee the student will be required to satisfactorily complete a comprehensive examination in pharmacy.



English Proficiency—a student must obtain a satisfactory score on the Proficiency Examination in Composition, or a certification of proficiency by the Composition Clinic. A student who is deficient in the use of the English language, written or oral, may at any time be required to enroll in the Composition Clinic.

American Government—all undergraduate students, as a prerequisite to being graduated from Wayne State University, are required to have completed satisfactorily a course in the principles of American government. The Faculty of Pharmacy includes as a required course in its curriculum Political Science 0101, which will satisfy this requirement.

Curriculum and Program Requirements—a student must complete the curriculum and program requirements (including required inspection trips to pharmaceutical manufacturers), remove any marks of I or Y, and be recommended by the faculty for the degree. The student must complete the required minimum number of credits, elect courses in the proper sequence in the appropriate curriculum shown below, and meet any course prerequisite or corequisite, unless excused by the Dean or the Assistant to the Dean for Student Services from doing so.

Attendance at Commencement—a student must be present at Commencement exercises.

UNDERGRADUATE CURRICULA

Curriculum

For students who, by September 1974, have completed at least three professional years in the pharmacy curriculum of the College of Pharmacy and Allied Health Professions.

Fourth Professional Year

		<i>Hours Per Week</i>		
		<i>Class</i>	<i>Lab</i>	<i>Credits</i>
<i>10th Quarter</i>				
Pharmaceutical Chemistry 0440	Pharmaceutical Biochemistry I	4	0	4
Pharmaceutical Chemistry 0460	Organic Pharmaceutical Chemistry	4	0	4
Pharmaceutics 0421	Physical Pharmacy and Pharmacy Technology II	3	4	4
Pharmacology 0425	Introduction to Pathologic States and Processes	3	0	3
				15
<i>11th Quarter</i>				
Pharmaceutical Chemistry 0441	Pharmaceutical Biochemistry II	3	0	3
Pharmaceutics 0422	Physical Pharmacy and Pharmacy Technology III	3	4	4
Pharmacognosy 0472	Pharmacognosy	4	0	4
Pharmacology 0553	Pharmacology I	4	3	5
				16

12th Quarter

Pharmaceutical Administration 0415	Professional Management	5	0	5
Pharmaceutics 0560	Pharmacotherapeutics I	4	0	4
Pharmacology 0554	Pharmacology II	3	3	4
¹ Electives				4
				17

Last Professional Year

		<i>Hours Per Week</i>		
		<i>Class</i>	<i>Lab</i>	<i>Credits</i>
<i>13th Quarter</i>				
Pharmaceutical Administration 0516	Jurisprudence and Ethics	5	0	5
Pharmaceutics 0558	Pharmaceutical Services in Health-Care Facilities	2	0	2
Pharmaceutics 0561	Pharmacotherapeutics II	3	0	3
Pharmacology 0555	Pharmacology III	3	3	4
² Professional Elective				3
				17

14th Quarter

Pharmaceutics 0562	Pharmacotherapeutics III	4	0	4
Pharmaceutics 0564	Case Studies in Drug Therapy	3	0	3
Pharmaceutics 0567	Biopharmaceutics	4	0	4
Professional Elective				3-6
				14-17

15th Quarter

Pharmaceutics 0543	Pharmaceutical Dispensing	4	4	5
Pharmaceutics 0563	Pharmacotherapeutics IV	3	0	3
Pharmaceutics 0565	Clinical Pharmacy	2	4	3
Professional Elective				3-6
				14-17

PROFESSIONAL ELECTIVES

Students select a minimum of twelve quarter hours of professional electives in the last professional year of study based on their choice of specialization option. The specialization option chosen by a student is selected from the following:

PROFESSIONAL PRACTICE (community or hospital)

INDUSTRIAL PRACTICE

PRE-GRADUATE STUDIES AND EDUCATION

In addition to the professional electives, students who select the Pre-Graduate Studies and Education option may select from the offerings in the University which will prepare them for their field of study in graduate work.

¹ For a list of approved electives in the humanities and social sciences, see p. 491.

² Professional electives based on the students choice of specialization option are taken during the last professional year. For a list of professional electives, see p. 476.

Pharmaceutical Administration (P A)

	<i>credits</i>
0612..... Professional Records and Accounting	3
0690..... Directed Study in Pharmaceutical Administration...	1-4
0698..... Seminar	1-3

Pharmaceutical Chemistry (P C)

0685..... Radiopharmacy	3
0690..... Directed Study in Pharmaceutical Chemistry	1-4
0698..... Seminar	1-3

Pharmaceutics (PHA)

0670..... Health-Care Accessories and Appliances	3
0671..... Special Problems in Professional Practice	3
0672..... Pharmacy Clerkship I	3
0673..... Pharmacy Clerkship II	3
0674..... Pharmacy Clerkship III	3
0676..... Pharmaceutical Manufacturing	3
0677..... Cosmetic Technology	3
0678..... Pharmaceutical Product Development	3
0681..... Intravenous Therapeutics	3
0682..... Sterile Products	3
0683..... Dermatological Preparations	3
0684..... Special Problems in Hospital Pharmacy Practice	2
0686..... Principles of Pediatric Pharmacy	3
0687..... Elements of Pharmaceutical Quality Control	3
0690..... Directed Study in Pharmaceutics	1-4
0698..... Seminar	1-3

Pharmacognosy (PCG)

0690..... Directed Study in Pharmacognosy	1-4
0698..... Seminar	1-3

Pharmacology (PCL)

0689..... Adverse Drug Reactions	3
0690..... Directed Study in Pharmacology	1-4
0698..... Seminar	1-3

Curriculum

For students who, by September 1974, are in their first, second, or third year of professional study:

The undergraduate professional curriculum in pharmacy consists of a total of five years of academic study and a minimum of 232 credits. Of these, 179 credits comprise the core curriculum required of all students in the College and fifty-three credits represent elective courses. Of these fifty-three credits, fifteen to twenty-one are professional electives and the remaining thirty-two to thirty-eight are approved electives in the humanities and social sciences, including at least four credits of English at the 0200 level. Any electives not shown in the list of "Approved Electives in Humanities and Social Sciences" on p. 491 must be approved by an adviser in the College of Pharmacy in order to be accepted for degree credit. No more than twelve credits in any one elective area will normally be considered for degree credit.

The curriculum for those students entering the professional curriculum (third, fourth and last professional years) of the College of Pharmacy and Allied Health Professions in the fall quarter 1974 and thereafter was not available at the time of publication of this bulletin. Interested parties should contact the College for details.

First Professional Year

		<i>Hours Per Week</i>		<i>Credits</i>
		<i>Class</i>	<i>Lab</i>	
<i>1st Quarter</i>				
Biology 0103	Introductory Biology ..	4	4	5
Chemistry 0107	Principles of Chemistry I	5	0	4
Mathematics 0211	Calculus of Functions of One Variable I	4	0	4
¹ Pharmaceutics 0300	Introduction to the Pharmaceutical Sciences	4	0	2
				15
<i>2nd Quarter</i>				
Biology 0160	Animal Biology	3	4	4
Chemistry 0108	Principles of Chemistry II	4	4	4
Economics 0101	Survey of Economics I ..	4	0	4
English 0150	Freshman Literature and Composition ..	4	0	4
				16
<i>3rd Quarter</i>				
Chemistry 0110	General Analytical Chemistry	3	6	4
Political Science 0101	Introduction to American Government	4	0	4
*Elective				4
English	0200 level course			4
				16

Second Professional Year

		<i>Hours Per Week</i>		<i>Credits</i>
		<i>Class</i>	<i>Lab</i>	
<i>4th Quarter</i>				
Chemistry 0224	Organic Chemistry I ..	4	0	4
Physics 0213	General Physics	4	2	4
² Pharmaceutics 0310	Professional Orientation	2	0	2
*Elective				4
				14
<i>5th Quarter</i>				
Chemistry 0226	Organic Chemistry II ..	4	0	4
Chemistry 0227	Organic Chemistry Laboratory	1	9	3
Physics 0214	General Physics	4	2	4
*Elective				4
				15
<i>6th Quarter</i>				
Biology 0220	Introductory Microbiology	3	4	4
Physics 0215	General Physics	4	2	4
*Electives				8
				16

¹ Suggested elective.

² Approved elective credits, although not shown, are usually taken during most quarters. For list of approved electives in humanities and social sciences, see p. 491.

³ Students who enter the College in the third year take this subject in the third year.

GRADUATE PROFESSIONAL PROGRAM

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 16. The following additions and amendments pertain to pharmacy students.

The College offers to qualified students a graduate professional program leading to the degree of Doctor of Pharmacy (Pharm. D.).

The Doctor of Pharmacy program is designed to prepare pharmacists who possess both the knowledge and skill that enables them to provide a humanistic, patient-centered (clinical) service as specialists in the use of drugs and who can apply pharmaceutical and biomedical sciences to the realities of drug therapy; who are motivated to participate in the interdisciplinary delivery of health care; and who can function as easily accessible health-care informants and educators, to cope with the complex problems in the delivery of comprehensive health care.

ADMISSION STANDARDS

Each applicant for admission to the professional Doctor of Pharmacy program is carefully reviewed in order to select those students having the academic and professional maturity, competency, and promise required by the program. An evaluation is made of the nature and quality of all previous academic work, including the dates particular courses were completed. The responsibility for deciding whether a student shall be admitted rests with the College following a personal interview by the Admissions Committee for the Doctoral Program.

To qualify for admission, an applicant must have a Bachelor of Science degree in Pharmacy or anticipation of such a degree within one year's time from a college of pharmacy which is accredited by the American Council on Pharmaceutical Education and is a member of the American Association of Colleges of Pharmacy.

Admission is normally granted only for the fall quarter; special arrangements for summer quarter admission are possible for applicants completing practical experience requirements for professional licensure.

An Official *Application for Admission to the Professional Doctor of Pharmacy Program*, a \$15.00 application fee, and official transcripts from each college or similar educational institution the applicant has attended must be submitted to the Chairman of the Admissions Committee for the Doctor of Pharmacy Program, College of Pharmacy and Allied Health Professions, Wayne State University, Detroit, Michigan 48202, before any firm consideration regarding admission can begin.

The applicant must demonstrate his ability to undertake successfully graduate professional education. If an applicant's honor point average is below 2.6, successful completion of special examinations may be required.

Deficiencies which an applicant might have in the nature or quality of his academic preparation will require successful completion of prerequisite courses as prescribed for the applicant as a condition of his admission.

The ability of the applicant to pursue full-time study is also considered.

ADVISORY COMMITTEE

Each student has the benefit of an Advisory Committee for the conduct of his clinical research project. This committee is comprised of a project adviser and at least two members of the Faculty of Pharmacy.

CLINICAL LABORATORY RESOURCES

An important aspect of the curriculum of this professional doctoral program is the availability of both hospital and community health-care facilities for the clinical instruction of its students. The student is placed in an environment where he can interact with patients which maximizes the student's opportunity to learn. Also, he can interact with other health professionals in providing health care on both social and professional planes. Course work in advanced clinical pharmacy and research for the professional doctoral project are conducted in facilities in which, for example, the student is given responsibility for the pharmaceutical management of a patient ward. The student will attend daily medical rounds, conferences, and seminars. These facilities are provided through formal affiliation or working arrangements with clinics, extended care facilities and some of the major hospitals in the Metropolitan Detroit area such as Detroit General Hospital, Providence Hospital, Sinai Hospital, Metropolitan Hospital, Grace Hospital, and Children's Hospital. New facilities in the Model Neighborhood Comprehensive Health Program, Incorporated, permit the student to obtain in-depth experience in the provision of pharmaceutical services to ambulatory patients in a health maintenance organization. The College is also able to provide clinical experiences at the community level through working arrangements with over twelve community pharmacies.

GRADUATE PROFESSIONAL DEGREE REQUIREMENTS

The following general requirements must be satisfied for the degree, Doctor of Pharmacy:

Residence — a student must have devoted at least one academic year to full-time study at Wayne State University including satisfactory completion of at least forty-eight credits subsequent to undergraduate study in pharmacy in accordance with the rules and regulations of the doctoral program of the College.

Honor Point Average — a student must maintain an honor point average of at least 3.0 in the last forty-eight credits of

required courses undertaken for credit toward the professional doctoral degree in pharmacy.

Curriculum and Program Requirements— a student must complete the curriculum and program requirements of the College and be recommended by the faculty for the degree. Courses must be elected in the proper sequence and any course prerequisites or corequisites must be met unless the student is excused from doing so by the appropriate faculty committee. Required credits must be earned within not more than two calendar years for applicability to the Doctor of Pharmacy degree. The academic adviser, Dean, Assistant Dean, or Graduate Officer must approve and sign each Program Request.

PROFESSIONAL DOCTORAL PROJECT IN PHARMACY

Each candidate for the Doctor of Pharmacy degree is required to complete and have approved by his project adviser and Advisory Committee a Professional Doctoral Project in Pharmacy which represents an independent study of an approved area of professional intellectual interest. This project must be started not less than two quarters before the date of anticipated graduation.

FINAL EXAMINATION

Each candidate for the Doctor of Pharmacy degree must satisfactorily complete a final oral examination conducted by his Advisory Committee.

GRADUATE PROFESSIONAL CURRICULUM

Graduate professional work leading to the Doctor of Pharmacy degree is predicated on the current five-year baccalaureate curriculum of the College of Pharmacy and Allied Health Professions. Students who have pursued a baccalaureate program other than this are required to elect such additional course work as may be necessary to make possible successful performance in the program. Such requirements are specified by the Admissions Committee for the Doctor of Pharmacy Program at the time of application to the program. Students wishing to continue with the professional doctorate work may indicate their intention to do so as early as the end of their fourth year of baccalaureate study.

The graduate professional curriculum in pharmacy consists of a minimum of six years of academic study, not less than four of which must be in a college of pharmacy. The candidates must complete a minimum of 281 quarter credits of specified academic work. Of these, not more than 233 quarter credits may be derived from the Bachelor of Science in Pharmacy program and the remainder represent terminal professional doctoral courses.

The curriculum consists of a combination of lectures, seminars, and clinical experiences (the clinical pharmacy practice courses) which focus upon intimate contact with patients and members of the health-care team.

Required Courses

		<i>credits</i>
Biochemistry 0769	Biochemistry of Disease	3
Pharmaceutics 0667	Pharmacokinetic Aspects of Clinical Pharmacy Practice	3
Pharmaceutics 0760	Biostatistics	3
Pharmaceutics 0770, 0771	Organization of Pharmaceutical Services in Health-Care Facilities I, II	6
Pharmaceutics 0775	Drug Literature Evaluation	1
Pharmaceutics 0776	Social Policies and Health Care	3
Pharmaceutics 0777, 0778, 0779	Therapeutic Aspects of Disease I, II, III	6
Pharmaceutics 0780, 0781, 0782	Advanced Clinical Pharmacy Clerkship I, II, III	9
Pharmaceutics 0794	Professional Doctoral Seminar in Pharmacy	1
Pharmaceutics 0795	Professional Doctoral Project in Pharmacy	2
Pharmacology 0730	Clinical Pathology	3
		40

Elective Courses

The following is a partial list of approved electives available:

Biology 0507	Genetics	4
Biology 0567	Endocrinology	4
Chemistry 0660, 0662, 0664	Biochemistry I, II, III	9
Computer Science 0501	Computers and Research	4
Pharmaceutical Chemistry 0685	Radiopharmacy	3
Pharmaceutics 0678	Pharmaceutical Product Development	3
Pharmaceutics 0681	Intravenous Therapeutics	3
Pharmaceutics 0682	Sterile Products	3
Pharmaceutics 0683	Dermatological Preparations	3
Pharmacology 0689	Adverse Drug Reactions	3
Pharmacology 0710, 0711	Advanced Pharmacology I, II	6
Pharmacology 0760	Clinical Pharmacology	3

GRADUATE PROGRAMS

The Faculty of Pharmacy offers courses leading to the degrees of Master of Science and Doctor of Philosophy.

The Faculty of Pharmacy offers a graduate program leading to the degree of Master of Science with majors in hospital pharmacy, pharmaceutical administration, pharmaceutical chemistry, pharmaceutics, pharmacognosy, and pharmacology.

In the Doctor of Philosophy program, the courses and general plan for the dissertation research are arranged with candidates by a committee of advisers, with majors in all of the above fields except hospital pharmacy.

GRADE REQUIREMENTS AND PREREQUISITES

In the selective admission of graduate students, preference is given to students who have achieved superior undergraduate scholastic records and who evidence superior abilities. If a student's undergraduate preparation is considered deficient for advanced work in his graduate major field, additional

work may be required at the undergraduate level. All prerequisite credits must be earned prior to or concurrent with the first graduate credits.

RESIDENCE

Residence requirements are specified in all graduate degrees in order to insure a concentration of study and to insure the student's ability to synthesize the knowledge acquired in the courses which constitute his degree program. In the master's degree program at least thirty-nine credits, including the essay or thesis, must be earned in residence at Wayne. The requirement of one year for Ph.D. residence is normally met by completion of three units (normally twelve quarter credits) of course work in each of three successive quarters. At least half of the credits in course work in each of the three quarters must be other than dissertation or directed study.

THE MASTER'S DEGREE

Students enrolled in master's degree programs are expected to file a *Plan of Work* by the time twelve graduate credits have been earned. Candidacy must be established by the time eighteen graduate credits have been earned; otherwise subsequent registration is denied.

In the Master's degree program the minimum requirement for the degree is forty-eight credits — under either Plan A or Plan B or Plan C as follows:

Plan A requires a minimum of thirty-six credits in course work plus a thesis.

Plan B requires a minimum of forty-five credits in course work plus an essay.

Plan C requires forty-eight credits in course work. Essay or thesis is not required.

Plan B and Plan C are authorized only in selected areas and may be taken only with the consent of the College Graduate Committee.

FINAL MASTER'S EXAMINATION

At least twelve credits of work in the major field, in addition to the essay or thesis, must be in courses open only to graduate students (numbered 0700 and above). A final examination covering course work and the thesis or essay is required of all candidates. The purpose of the requirement is to give the candidate an opportunity to demonstrate that he can organize, synthesize, and interpret knowledge gained from his course work, and can express himself clearly and constructively. While not required for the master's degree, a reading knowledge of either German or French is highly desirable.

CREDITS

A credit (credit hour) is defined as one class hour requiring a minimum of two hours of preparation per week carried

through a quarter. A three hour laboratory period is generally regarded as the equivalent of one class hour.

Some of the early course work of a student attempting to complete degree requirements may become out-of-date, because of a protracted interruption in his education or irregular registration over an extended period of time. Such determinations are made by the College and a student may be required to take refresher work or otherwise demonstrate his preparation for advanced courses.

ACADEMIC AND PROFESSIONAL PROGRESS

The College expects its students to develop professional competence and to satisfy the same high standards of exemplary character, appearance, and ethical conduct expected of professional pharmacists.

To merit confidence and esteem, both personally and in the health care professions, appropriate dress and demeanor are expected of each student in the academic and professional program in pharmacy. A student may be excluded from the College at any time for an unsatisfactory academic or professional record, for irresponsible attendance, or other failures to diligently pursue the academic and professional program.

PROBATION

Probationary status is a warning that, unless his record or performance improves, the student is subject to dismissal from the College.

An undergraduate student is on "academic" probation whenever his cumulative honor point average falls below 2.0. While on "academic" probation, a student may not represent the College in student activities.

If an undergraduate student's honor point average for any quarter is below 2.0, he is on "professional" probation regardless of his over-all cumulative honor point average.

The report of final grades sent to a student is notice of probation.

The undergraduate student on either "academic" or "professional" probation ordinarily will regain regular standing when both his cumulative honor point average and his current quarter's honor point average are 2.0.

Despite a satisfactory honor point average, a student may, upon vote of the College of Pharmacy Academic and Professional Progress Committee, be placed on "special" probation because of unsatisfactory progress in developing professional competence. Such probation becomes effective from the date of Committee vote and is continued until the Committee votes to restore the student to regular status or refuse him the privilege of registering in the College. A student who has been placed on probation, or who has been refused the privilege of registering in the College, may request a reconsideration of the status when extenuating circumstances exist which might be unknown to the Academic and Professional Progress Committee.

ATTENDANCE

Absence from three consecutive meetings of a class or absence from a class for a period of two weeks, whichever involves the longer period, without a satisfactory excuse, automatically drops a student from that class. Additionally, an instructor may exclude a student from the final examination in a course where the total number of the student's absences exceeds twice the number of credits in the course. Late students may be considered absent at the discretion of the instructor. A student who has been excluded may re-enter the class only with permission of the instructor and the Dean or the Assistant to the Dean for Student Services.

STUDENT CONDUCT

Every student is subject to published regulations governing student activities and student behavior. When there are reasonable grounds to believe that a student has acted in a manner contrary to law and the mores of the community, such student may be disciplined. Such discipline may include suspension or dismissal, but no dismissal will be directed without reasonable opportunity for an appropriate hearing.

Students are responsible for all published or posted notices of official information or procedure.

OUTSIDE EMPLOYMENT

The undergraduate curriculum has been arranged with the presumption that the student will devote his full time and energy to it. Pharmacy internship and other pharmaceutical employment is recognized as an integral part of the academic and professional progress of the pharmacy student. A few hours per week of outside employment in addition to the programmed College work may be safely undertaken by a capable student. However, students who undertake such outside employment have the additional responsibility of maintaining an appropriate balance between employment and study.

DEAN'S LIST OF HONOR STUDENTS

A regular undergraduate student who achieves a quarter honor point average of 3.5 or more is, upon vote of the Academic and Professional Progress Committee, notified by the Dean of his citation for distinguished scholarship and professional progress. The student's name is placed on the Dean's List of Honor Students.

GRADUATION WITH DISTINCTION

A candidate eligible for the degree of Bachelor of Science in Pharmacy may receive a special diploma "with distinction" or "with high distinction" under the following conditions:

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

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

The Honors Committee of the College will examine distinctly extraordinary cases in which the application of the foregoing criteria works a great injustice, and will make recommendations to the faculty on graduation with distinction or high distinction.

FINANCIAL AIDS

PRIZES AND AWARDS

Alpha Zeta Omega Scholastic Award — Each year the name of the member of Phi Chapter of Alpha Zeta Omega Pharmaceutical Fraternity who achieved the highest scholastic average over the preceding three quarters is engraved on a recognition plaque, which hangs in the pharmacy building.

American Pharmaceutical Association Certificate — A certificate of commendation is issued annually by the American Pharmaceutical Association to the graduating student who has contributed most in developing membership and encouraging participation in the activities of the student chapter of the College.

Asklepios Key Award — A distinctive recognition key is presented annually by Mu Omicron Pi Chapter of Kappa Psi Pharmaceutical Fraternity, to the member who has been most active in the interests of the fraternity.

Bristol Award — An appropriate book is awarded annually to the graduating student who, in the judgment of the faculty, has shown the greatest professional growth.

Detroit Alumni Rho Pi Phi Award — A \$50 check is presented annually to the Rho Pi Phi Fraternity member who has two years residence in the College of Pharmacy and Allied Health Professions, has attained the highest scholastic average of all similarly eligible students, and has distinguished himself in leadership and contributions to the fraternity.

Edward Baron Award — A set of metric and apothecary weights is awarded annually by Phi Chapter of Alpha Zeta Omega Pharmaceutical Fraternity to the second year student with the highest scholastic average based on a minimum of forty-five quarter hours in residence.

Ethel J. Heath Scholarship Key — A distinctive honor key is awarded by Omicron Chapter of Lambda Kappa Sigma International Pharmaceutical Sorority, to each graduating member in good standing who has attained a cumulative scholastic rank in the upper ten per cent of all candidates eligible for graduation.

Gerald L. Gerger Achievement Award — Annually, the name of the member of Phi Chapter of Alpha Zeta Omega Pharmaceutical Fraternity who, in the judgment of the fraternity, has accomplished most for the fraternity and the University during the preceding year, is engraved on a recognition plaque which hangs in the pharmacy building.

Johnson & Johnson Award — A distinctive replica of an antique Revolutionary War mortar and pestle is awarded annually to the graduating student who, in the judgment of the faculty, exhibits exceptional interest, aptitude, and achievement in pharmaceutical administration.

Kappa Psi Graduate Chapter Award — A watch is awarded annually by the Detroit Graduate Chapter of Kappa Psi Phar-

maceutical Fraternity to the graduating student with the highest scholastic average in the professional courses taken in the College.

Kappa Psi Pharmaceutical Fraternity Award — The name of the graduating member of Mu Omicron Pi Chapter of Kappa Psi Pharmaceutical Fraternity who attains the highest scholastic average for the entire College program is engraved annually on a recognition plaque and he is presented a savings bond by the fraternity.

Kappa Psi Pharmaceutical Fraternity Certificate of Appreciation — A recognition certificate is presented by Mu Omicron Pi Chapter of Kappa Psi Pharmaceutical Fraternity, to a graduating member of the fraternity who has demonstrated interest in the fraternity and maintained a good scholastic average.

Kappa Psi Pharmaceutical Fraternity Grand Council Award — A distinctive recognition key and certificate are awarded by Kappa Psi Pharmaceutical Fraternity to a member of the fraternity when he attains the highest scholastic average in his College graduating class.

Kappa Psi Scholarship Honors Certificate — The Scholarship Honors Certificates of Kappa Psi Pharmaceutical Fraternity are fourth professional year and last professional year awards to students who have been members of the fraternity for a minimum of one year and who have achieved a scholastic average of at least B in the past full year of academic work as determined in the first half of the fourth professional year, and in the first half of the last professional year of the curriculum.

Lambda Kappa Sigma Recognition Key — A recognition key is presented by Omicron Chapter of Lambda Kappa Sigma International Pharmaceutical Fraternity when, in the opinion of the fraternity, a graduating fraternity member has displayed distinguished service to the fraternity and College, and is in good standing academically and professionally.

The Lilly Achievement Award — Upon recommendation of the faculty, a gold medal encased in a suitable plastic mounting is awarded annually by Eli Lilly and Company, to a graduating student for superior scholastic and professional achievement, leadership qualities, and professional attitude.

McKesson-Robbins Award — A suitably inscribed plaque and gavel is presented to the incoming president of the Student Chapter, American Pharmaceutical Association — Michigan State Pharmaceutical Association.

Medical Arts Award — A distinctive trophy is awarded annually by the Medical Arts Pharmacy to the graduating student who has done superior work in dispensing and who stands high in all subjects in the curriculum.

Merck Award — Two sets of books consisting of The Merck Index and The Merck Manual are awarded annually, one to the graduating student attaining the highest average in the overall College program; the other to the graduating student attaining the highest average in the pharmacology and pharmacotherapeutics courses, except that in the event that the same individual qualifies for both awards, the second award

will be presented to the graduating student with the second highest average in the overall College program.

Perry Pharmacy Achievement Award—A \$100 check is award annually by Perry Pharmacies, Inc. to the fifth year student who has earned the highest scholastic average in the area of pharmaceutical administration.

Pharmaceutical Chemistry Prize—An appropriate award is made annually by Gold Seal Photo Service, Inc., to the student who, at the end of the fourth year, has attained the highest scholastic average in the complete course sequence in pharmaceutical chemistry.

Phi Delta Chi Alpha Eta Alumni Award—Each year the name of the graduating member of Alpha Eta Chapter of Phi Delta Chi Fraternity who attains the highest scholastic average of all such eligible graduating students is engraved on a plaque, which is presented to the student by the fraternity.

Phi Delta Chi Award—A \$100 check is awarded annually by the Phi Delta Chi Fraternity to a fourth year student in the College, selected from at least three nominees in the top twenty-five percent of their class recommended by the faculty, and determined by the awards committee of the fraternity to have demonstrated potential leadership in intra-professional activities by his fourth year in the College.

Phi Delta Chi Man of the Year Award—Annually, the name of the graduating members of Alpha Eta Chapter of Phi Delta Chi, who has been selected by the chapter for leadership, service to the fraternity, and character, while maintaining appropriate scholarship, is engraved on an appropriate plaque.

Rexall Award—A mortar and pestle trophy is awarded by the Rexall Drug Company to a graduating student who has distinguished himself in co-curricular activities in the College.

Rho Pi Phi Award—A copy of *The United States Dispensatory* is awarded annually by the Womens Auxiliary of Rho Pi Phi Fraternity to a third year student who has completed one year in the College and who, in the judgment of the faculty, has distinguished himself in scholarship and professional attitude.

Rho Pi Phi Scholarship—A \$100 check is awarded annually by Rho Pi Phi Fraternity to a fourth year student who, in the judgment of the faculty and a fraternity committee, has distinguished himself scholastically and professionally.

The Upjohn Award—Awarded annually to the graduating senior who, in the judgment of the faculty, has been most active in off-campus public service activities.

FINANCIAL AIDS

If students have problems in meeting the costs of higher education, the University will make every effort to assist in several ways:

Scholarships—Outright gifts of money awarded to students on the basis of academic achievement, financial need, and leadership qualities.

Grants-in-aid—Outright gifts of money awarded primarily on the basis of financial need.

Awards—Outright gifts of money awarded to students who participate in extra-curricular activity programs of the University.

Loans—Grant of money made with the provision that they be repaid.

Information concerning the aid programs of the University can be found in the "Financial Aids Bulletin" which is available on request.

GRADUATE AID

Graduate Assistantships—Several Graduate Assistantships are available each year for qualified students. All graduate assistants pay resident tuition and receive stipends of \$2300-\$3800 per academic year depending on qualifications.

Graduate Fellowships—Various fellowships are available through the American Foundation for Pharmaceutical Education and the National Institutes of Health.

Graduate Professional Scholarships—Each year the Office for Graduate Studies, Graduate Division, awards a number of scholarships for advanced study. These awards are made to students holding the baccalaureate degree who plan to pursue full-time course work. Application forms are available at the Office of the Associate Dean and are returnable by April 15th. Awards are contingent upon acceptance for graduate study.

National Defense Student Loan Program—The University is a participant in the Student Loan Program authorized by the National Defense Education Act of 1958. Inquiries concerning this program should be addressed to the Office of Student Financial Aids.

National Science Foundation—The Graduate Division participates in the NSF fellowship program and also in the Foundation's summer traineeship program for graduate teaching assistants. Inquiries should be made early in the academic year and should be directed to the Associate Dean, Office for Graduate Studies, Graduate Division.

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

Other Assistance—From time to time, fellowships, and other opportunities are open to students on other than a continuing basis. The Office for Graduate Studies has on file information on many awards not generally publicized by the

University or the individual departments. Students are invited to make inquiry at the Office for Graduate Studies.

SCHOLARSHIPS

Scholarships have been established through contributions to the University by individuals and organizations interested in encouraging worthy students to continue their studies. The scholarships differ greatly in their specifications; some stress high scholarship while others place emphasis on financial need or campus citizenship. In addition, Wayne State University awards scholarships in the form of remission of a substantial portion of the tuition fees to students of superior academic achievement.

College of Pharmacy and Allied Health Professions students are eligible for general scholarships and loans available to all University students. Students in need of financial assistance should contact the Dean of the College. Applications for financial aid should be addressed to the Counselor for Student Financial Aids, Wayne State University, Detroit, Michigan 48202.

In addition to the above general scholarships and loans of the University, the following scholarships are available to pharmacy students.

Aesculapian Pharmaceutical Association Scholarship — A fund, established by the Aesculapian Pharmaceutical Association and its auxiliary, provides assistance to a worthy student in pharmacy. Selections are made on the basis of academic achievement and financial need.

Alpha Zeta Omega Scholarship — A fund established by Alpha Zeta Omega Pharmaceutical Fraternity provides assistance to students entering the first year of the pharmacy program. Where possible, preference is given to residents of Wayne, Oakland, or Macomb Counties in Michigan.

American Foundation for Pharmaceutical Education Scholarship — Third, fourth, and last professional year students in the College, who have established evidence of competency and scholastic ability, are eligible for financial aid through American Foundation for Pharmaceutical Education Scholarships.

Arnold Pharmacies Scholarship — An annual scholarship is presented to a third, fourth or last professional year student in the College on the basis of financial need and scholastic achievement. Eligible students shall be residents of Michigan expressing an interest in community pharmacy practice.

Blizzard and Associates Scholarship — A fund established by Blizzard and Associates available to a student in the College who has demonstrated scholastic achievement, professional character, leadership, and is in financial need.

College of Pharmacy Alumni Association Scholarship Fund — A fund is maintained by the Pharmacy Alumni Association to assist financially needy and worthy pharmacy students.

John W. Dargavel Foundation Scholarships — Funds are available through the John W. Dargavel Foundation for third,

fourth, and last professional year students in the College. These scholarships are based upon scholastic achievements, character, leadership, and financial need.

Fairlane Pharmacy Scholarship — A fund established by Fairlane Pharmacies provides partial tuition for two pharmacy students each year. Preference is given to students residing in Warren, Michigan.

Greater Northwest Pharmacist Association Scholarship — A scholarship is awarded annually to a student in good standing in the third, fourth, or last professional year of the pharmacy program who shows qualities of character and leadership and is in financial need.

Hazeltine and Perkins Scholarship — Pharmacy students who are residents of other than Wayne County can be considered for financial aid through a fund sponsored by the Hazeltine and Perkins Drug Company. Preference is given to residents of the Flint, Michigan area.

Homer Hazelton Memorial Scholarship — A fund established by the Macomb County Pharmacists Association available to a student in the College, who has demonstrated scholastic achievement, professional character, leadership, and is in financial need. Preference is given to residents of Macomb County.

John Helfman Pharmacy Fund — An endowment fund has been established by the estate of John Helfman to be used for the benefit of the College, including scholarship support for pharmacy students.

Serling Drug Company Scholarship — A fund established by the Serling Drug Company available to a third, fourth, or last professional year student in the College, who has demonstrated scholastic achievement, professional character, leadership, and is in financial need. Preference is given to residents of Wayne, Oakland, or Macomb Counties in Michigan.

Frank O. Taylor Scholarship of Wayne State University (Pharmacy) — An endowment fund has been established by the estate of Frank O. Taylor to provide scholarship funds for students in their last year of undergraduate work or in the graduate program. Eligible students shall be only those specializing in Industrial (Manufacturing) Pharmacy.

LOANS

Pharmacy students are eligible for student loans and tuition loans administered by the University Office of Student Financial Aids. In addition to these, the following loans are also available to students of pharmacy.

Roland T. Lakey Student Loan Fund — A loan fund was established in honor of Dean Emeritus Roland T. Lakey by the Pharmacy Alumni Association, Rho Pi Phi Fraternity, and friends of Dean Lakey. Pharmacy students are eligible for loans from this fund when students have completed eighteen credits in the College with an honor point average of at least 2.2. Application forms and other information con-

cerning this fund may be obtained at the University Office of Student Financial Aids.

Max Milstein Memorial Loan Fund—A memorial fund established by the family and friends of Mr. Max Milstein, alumnus of the College, to provide loans to students of the College who are in good academic standing, and intended for fees, including tuition, books, and supplies. Available to undergraduate and graduate students.

Morris Rogoff Student Loan Fund—The family and friends of Mr. Morris Rogoff, a dedicated alumnus of the College, have established a loan fund in his memory. These funds will provide financial assistance for pharmacy students in the undergraduate and graduate programs and they are intended primarily for fees, books and supplies.

HEALTH PROFESSIONS EDUCATIONAL ASSISTANCE

The Federal Health Professions Education Assistance Amendments of 1965 authorized a scholarship program enabling qualified students from low-income families to undertake the undergraduate pharmacy program. Any student who is eligible to enroll in any of the last four years of the curriculum of the College, is a permanent resident of the United States, and is in need of financial aid may apply. Transfer students are immediately eligible upon acceptance by the College.

In addition to the federally sponsored scholarship program, loan assistance is also available to qualified students enrolled in the College. The federally sponsored loan assistance provides opportunities for the education of needy students through low-interest loans for pursuing study in pharmacy.

Through Health Professions Educational Assistance, a student may receive as much as \$2500 for each academic year he is enrolled in the College.

Information and applications forms for a Health Professions Pharmacy Scholarship, or for loan assistance, are obtainable from the University Office of Student Financial Aids.

COURSES OF INSTRUCTION¹

Pharmaceutical Administration (P A)

*0316. Health-Care Industry Economics and Marketing. Cr. 4.

Prereq: consent of adviser; ECO 0101. Facts, considerations, and principles which underlie the flow of drug products, and the availability or use of pharmaceutical and other professional services from production to consumption. Principal economic, legislative, and social forces affecting the health-care industry and resulting policies and procedures.

*0415. Professional Management. Cr. 5.

Prereq: P A 0316. Organization policies, planning, and controlling the relation of pharmaceutical services, professional practice, and pharmacy operation to general business activity, patients, the human service profession, and the public health.

*0516. Jurisprudence and Ethics. Cr. 5.

Prereq: P A 0415. Principles of positive law and legal relations of particular concern in pharmacy, moral or political policies, and resulting practices or procedure.

0612. Professional Records and Accounting. Cr. 3.

Prereq: consent of instructor. Principles and practices involving operating and financial records or reports of a business. Medical or pharmaceutical reports regarding patient health.

0690. Directed Study in Pharmaceutical Administration. Cr. 1-4 (Max. 4).

Open only to undergraduates with consent of instructor.

0698. Seminar. Cr. 1-3 (Max. 3).

Prereq: consent of instructor and adviser. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0730. Marketing Drug Products. Cr. 4.

Prereq: consent of instructor and adviser. Principles which underlie marketing of drug products; marketing channels, agencies, institutions, functions, policies and practices; comparison and contrast of business enterprises, hospitals and other eleemosynary corporations. Distributions through government agencies.

0731. Community Practice. Cr. 4.

Prereq: consent of instructor and adviser. General principles, types of terminal distributors, policies and procedures, competition, promotion and public health.

0732. Pharmacy Management I. Cr. 4.

Prereq: consent of instructor and adviser. Principles of management, including operation; comparison and contrast of policies and procedures of various types of pharmacies.

0733. Pharmacy Management II. Cr. 4.

Prereq: P A 0732. Continuation of Pharmaceutical Administration 0732.

0740. Federal Food and Drug Control. Cr. 3.

Open to students with baccalaureate degrees in any field with consent of instructor. History, philosophy, requirements, administration and enforcement of the Federal Food, Drug, and Cos-

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

metic Act; its impact on industry, health professions, and consumers in terms of economics and public health.

0750. Social Aspects of Health Care. Cr. 3.

Prereq: consent of instructor. Legislative, political, and socio-economic issues or factors affecting practice, procedure, and public policy in the providing of health-care services by those human service professions concerned.

0790. Directed Study in Pharmaceutical Administration. Cr. 2-5 (Max. 7).

Prereq: consent of instructor and graduate officer. Research problems in pharmaceutical administration.

0798. Seminar. Cr. 1-2 (Max. 4).

Prereq: consent of adviser. Reports and discussions by students and members of the staff concerning current developments in the field of pharmaceutical administration.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0860. Special Topics in Pharmaceutical Administration. Cr. 3 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Recent developments in pharmaceutical administration. Topics under investigation and of current interest offered in different quarters.

0895. Research in Pharmaceutical Administration. Cr. 3-6 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmaceutical administration, including the application of basic principles to graduate study and research in pharmaceutical administration.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

Pharmaceutical Chemistry (P C)

***0342. Quantitative Pharmaceutical Chemistry. Cr. 4.**

Prereq: CHM 0226, 0227; prereq. or coreq: PHY 0215. The determination and quality control of official medicaments. Topics include gravimetric, volumetric, special and instrumental methods.

***0343. Quantitative Pharmaceutical Chemistry Laboratory. (0,4). Cr. 1.**

Prereq. or coreq: P C 0342. Laboratory techniques utilized in major types of "official" gravimetric, volumetric and instrumental assays.

***0440. Pharmaceutical Biochemistry I. Cr. 4.**

Prereq: CHM 0226, 0227; BIO 0566. Survey of biological chemistry; mechanisms of action of drug molecules and other facets pertinent to the pharmaceutical sciences.

***0441. Pharmaceutical Biochemistry II. Cr. 3.**

Prereq: P C 0440. Continuation of Pharmaceutical Chemistry 0440.

***0460. Organic Pharmaceutical Chemistry. Cr. 4.**

Prereq: CHM 0226, 0227; BIO 0566. Discussion of organic medicinals within the framework of the physical and chemical properties of the compounds and the significance of these for pharmacological actions, for stability, and storage. Structure-activity relationships are considered.

0604. Inorganic Pharmaceutical Chemistry. Cr. 4.

Prereq: consent of instructor. Inorganic chemicals used pharmaceutically; methods of preparing and testing official compounds.

0605. Chemistry of Organic Medicinal Products I. Cr. 4.

Prereq: consent of instructor. Sources, methods of production, classification; properties and uses of natural and synthetic organic compounds used pharmaceutically, including the relation of structure to physiological activity.

0606. Chemistry of Organic Medicinal Products II. Cr. 4.

Prereq: P C 0605. Continuation of Pharmaceutical Chemistry 0605.

0607. Chemistry of Organic Medicinal Products Laboratory I. Cr. 3.

Prereq. or coreq: P C 0605. Laboratory exercises dealing with important and characteristic chemical properties; preparation of organic compounds used in pharmacy and medicine.

0608. Chemistry of Organic Medicinal Products Laboratory II. Cr. 3.

Prereq: P C 0607. Continuation of Pharmaceutical Chemistry 0607.

0620. Qualitative Drug Analysis. (2,3). Cr. 3.

Prereq: P C 0342, 0343; open only to undergraduates with consent of instructor. Spectral and chromatographic techniques used in identification of medicinal agents. Operation of infrared, ultraviolet and nuclear magnetic resonance spectrophotometers.

0685. Radiopharmacy. Cr. 3.

Prereq: last professional year standing. Fundamentals of radiopharmacy with particular emphasis on the diagnostic and therapeutic applications of isotopes as well as a general survey of the numerous non-medical applications of radioactive pharmaceuticals.

0690. Directed Study in Pharmaceutical Chemistry. Cr. 1-4 (Max. 4).

Open only to undergraduates with consent of instructor and adviser.

0698. Seminar. Cr. 1-3 (Max. 3).

Prereq: consent of instructor and adviser. Reports and discussions of current literature and recent advances in the field. Assigned topics presented by students.

0702. Introduction to Drug Design. Cr. 3.

Prereq: consent of instructor. Basic mechanisms of organic reactions as they relate to an understanding of drug design and synthesis.

0705. Chemistry of Natural Products. Cr. 3.

Prereq: consent of instructor. Occurrence, identification, structure, synthesis, and biogenesis of terpenes, steroids, and alkaloids with emphasis on pharmacologically important substances.

0790. Directed Study in Pharmaceutical Chemistry. Cr. 2-5 (Max. 7).

Prereq: consent of adviser and graduate officer. Research problems in pharmaceutical chemistry.

0798. Seminar. Cr. 1-2 (Max. 4).

Prereq: consent of adviser. Topics assigned in the fields of interest to pharmacy are presented by students and members of the staff.

0820. Physical Methods for Structure Elucidation of Medicinals. Cr. 3.

Prereq: graduate standing and consent of instructor. A discussion of new physical methods used to determine the structure of natural and synthetic medicinal agents.

0822. Pharmacobiodynamics. Cr. 3.

Prereq: consent of instructor. Discussion of a broad spectrum of new innovations in chemotherapy by enzymatic and genetic inferences.

0860. Special Topics in Pharmaceutical Chemistry. Cr. 3 (Max. 9, M.S.; Max. 18, Ph. D.).

Prereq: consent of instructor. Recent developments in medicinal chemistry. Topics under investigation and of current interest offered in different quarters.

0895. Research in Pharmaceutical Chemistry. Cr. 3-6 (Max. 9, M.S.; Max 18, Ph.D.).

Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmaceutical chemistry, including the application of basic principles to graduate study and research in pharmaceutical chemistry.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Pharmaceutics (PHA)

0200. Perspectives in Drug Abuse. Cr. 3.

Prereq: consent of instructor; undergraduate standing. Open to pharmacy and non-pharmacy majors. General elective credit only for pharmacy students. Aspects of drugs of abuse: pharmacological, psychological, legal, and sociological. Visits to and participation in institutions concerned with problems of drug abuse.

0300. Introduction to the Pharmaceutical Sciences. (2,1). Cr. 2.

Prereq: consent of adviser. Offered for S and U grades only. Interrelationships of the basic and pharmaceutical sciences and their contribution to the total education of the patient-oriented pharmacist.

***0310. Professional Orientation. Cr. 2.**

Prereq: consent of adviser. Offered for S and U grades only. The historical development, ethical basis, and nature of the pharmaceutical profession.

***0324. Non-Prescription Medication. Cr. 4.**

Prereq: BIO 0566. A discussion of various therapeutic classes of non-prescription medication with particular reference to rationale for use, products available, comparative effectiveness and contraindications.

***0330. Public Health. Cr. 3.**

Prereq, or coreq: BIO 0220. Principles of community and personal

hygiene and health; etiology, communication, and control of diseases.

***0420. Physical Pharmacy and Pharmacy Technology I. (3,4). Cr. 4.**

Prereq: PHA 0300, 0310, 0317; prereq. or coreq: P C 0342, 0343. A discussion of physicochemical principles which form the basis for the preparation of pharmaceutical liquid dosage forms.

***0421. Physical Pharmacy and Pharmacy Technology II. (3,4). Cr. 4.**

Prereq: PHA 0420. A discussion of physicochemical principles which form the basis for the preparation of pharmaceutical disperse systems.

***0422. Physical Pharmacy and Pharmacy Technology III. (3,4). Cr. 4.**

Prereq: PHA 0421. A discussion of physicochemical principles which form the basis for the preparation of pharmaceutical solid dosage forms and to achieve specific objectives in the preparation of various pharmaceutical dosage forms.

***0543. Pharmaceutical Dispensing. (4,4). Cr. 5.**

Prereq: PHA 0422, 0561; P A 0516. Compounding and dispensing of prescription medication, incompatibilities, special techniques, and professional and legal considerations.

***0558. Pharmaceutical Services in Health-Care Facilities. Cr. 2.**

Coreq: P A 0516. Pharmaceutical service needs of patients in hospitals, extended care facilities, and domiciliary institutions and the functions and responsibilities of the pharmacist as a member of the patient-care team in this environment.

***0560. Pharmacotherapeutics I. Cr. 4.**

Coreq: PCL 0554. Discussion of drug therapy encompassing a review of the disease state, the chemistry, mode of action, adverse effects, major contraindications, usual dosage schedules, and specialty products which are available in the pharmaceutical armamentarium.

***0561. Pharmacotherapeutics II. Cr. 3.**

Prereq: PHA 0560; coreq: PCL 0555. Continuation of Pharmaceutics 0560.

***0562. Pharmacotherapeutics III. Cr. 4.**

Prereq: PHA 0561; coreq: PHA 0567. Continuation of Pharmaceutics 0561.

***0563. Pharmacotherapeutics IV. Cr. 3.**

Prereq: PHA 0562. Continuation of Pharmaceutics 0562.

***0564. Case Studies in Drug Therapy. Cr. 3.**

Prereq. or coreq: PHA 0561, PCL 0555. The medical model as applied to disease states and therapy. Principles of monitoring drug therapy and the application of rational therapeutics.

***0565. Clinical Pharmacy. (2,4). Cr. 3.**

Coreq: PHA 0563. Students are placed in direct contact with other members of the patient-care team in a hospital setting in order to develop an insight into disease processes and their treatment, and to learn modern concepts of a pharmacist's role in total patient-care in both community and hospital practice.

***0567. Biopharmaceutics. Cr. 4.**

Coreq: PHA 0562. Discussion of various physical and chemical properties of drugs that influence drug absorption, distribution, metabolism, and excretion, and the presentation of mechanisms involved in such processes in the body.

0667. Pharmacokinetic Aspects of Clinical Pharmacy Practice. Cr. 3.

Prereq: PHA 0567, last professional year standing. Utilization of pharmacokinetic theory in the interpretation and evaluation of clinical literature. Application of these principles in drug therapy. Lectures, library, and discussion.

0670. Health-Care Accessories and Appliances. Cr. 3.

Prereq: last professional year standing. Review of the availability and applications of surgical appliances and other health-care devices used in patient-care.

0671. Special Problems in Professional Practice. Cr. 3.

Prereq: last professional year standing; open only to undergraduate students. Offered for S and U grades only. A clinical practice course wherein the student is exposed to problem situations which arise in professional practice.

0672. Pharmacy Clerkship I. Cr. 3.

Open only to undergraduate students with last professional year standing. Practice experience in community pharmacies, hospitals and other health-care facilities.

0673. Pharmacy Clerkship II. Cr. 3.

Prereq PHA 0672. Continuation of Pharmaceutics 0672.

0674. Pharmacy Clerkship III. Cr. 3.

Prereq: PHA 0673. Continuation of Pharmaceutics 0673.

0676. Pharmaceutical Manufacturing. Cr. 3.

Prereq: last professional year standing. The procedures employed in the manufacture of pharmaceuticals.

0677. Cosmetic Technology. (2,3). Cr. 3.

Prereq: PHA 0422. The physiological and technological aspects of cosmetic formulation.

0678. Pharmaceutical Product Development. Cr. 3.

Prereq: last professional year standing. Discussion of the manner in which the various technological disciplines are employed in the development of new pharmaceuticals in view of the therapeutic needs presented.

0681. Intravenous Therapeutics. Cr. 3.

Prereq: P C 0441; PHA 0422; PCL 0553 or equiv. The physiology of fluid balance, fluid balance abnormalities, acid-base balance, treatment of fluid abnormalities, maintenance requirements, electrolyte replacement, and diseases commonly associated with fluid imbalance.

0682. Sterile Products. (2,3). Cr. 3.

Prereq: last professional year standing. An introduction to the principles, techniques, and equipment employed in the manufacture of sterile products.

0683. Dermatological Preparations. Cr. 3.

Prereq: last professional year standing. Discussion of common skin disorders, their treatment, and the formulation of topical pharmaceuticals and hypo-allergenic cosmetics.

0684. Special Problems in Hospital Pharmacy Practice. Cr. 2.

Prereq: last professional year standing. Discussions in depth of current professional problems relating to the distribution, use, and control of drugs in hospitals and related health-care facilities.

0686. Principles of Pediatric Pharmacy. Cr. 3.

Prereq: fifth year standing. Common pediatric problems and diseases including posology, drug administration, poisonings, cystic fibrosis, sickle cell anemia, placental transfer of drugs and teratology.

0687. Elements of Pharmaceutical Quality Control. Cr. 3.

Prereq: last professional year standing. Discussion of the fundamental bases of quality control in which the student is led to an understanding of the critical steps necessary to adequate control in the production of pharmaceuticals.

0690. Directed Study in Pharmaceutics. Cr. 1-4 (Max. 4).

Open only to undergraduates with consent of instructor and adviser.

0698. Seminar. Cr. 1-3 (Max. 3).

Prereq: consent of instructor and adviser. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0700. Ionic Equilibria, Solubility and Complexation Phenomena. Cr. 3.

Prereq: consent of instructor. The presentation of mechanistic rationalization of drug solubility and complexation phenomena and methods for evaluating the parameters (such as association and thermodynamic constants) of these processes.

0701. Principles of Pharmaceutical Formulation. Cr. 3.

Prereq: PHA 0700 and consent of instructor. Application of pharmaceutical agents and techniques to preparation, preservation and stabilization of pharmaceutical products.

0702. Kinetics of Drug Degradation and Stabilization. Cr. 3.

Prereq: consent of instructor. Application of the principles of chemical kinetics to the mechanism of drug degradation and stabilization.

0717. Manufacturing Pharmacy Lecture. Cr. 4.

Prereq: consent of instructor. Principles, processes and research concerning large scale formulation of pharmaceuticals.

0718. Manufacturing Pharmacy Laboratory. (1,6). Cr. 3.

Prereq: PHA 0717. Continuation of Pharmaceutics 0717.

0720. Orientation to Health-Care Facilities. Cr. 3.

Prereq: consent of instructor. A discussion of the organization of health-care facilities and the organization of pharmaceutical services as required in such facilities.

0730. Pharmaceutical Quality Control. Cr. 3.

Prereq: undergraduate degree in pharmacy. Organization, responsibilities, and technological procedures of a pharmaceutical quality control division in an industrial complex.

0760. Biostatistics. Cr. 3.

Prereq: consent of instructor. Principles of the analysis of clinical data by statistical analytical methods that have proven of value in biological and human therapeutic research.

0768. Topics in Therapeutics I. Cr. 2.

Prereq: PCL 0740. Open only to students enrolled in Hospital Pharmacy M.S. program. The medical treatment of various disease states and a discussion of the disease states involved.

0769. Topics in Therapeutics II. Cr. 2.

Prereq: PHA 0768. Open only to students enrolled in Hospital Pharmacy M.S. program. Continuation of Pharmaceutics 0768.

0770. Organization of Pharmaceutical Services in Health-Care Facilities I. Cr. 3.

Prereq: consent of instructor. Development of pharmaceutical services in our nation's hospitals and related health-care facilities; the clinical pharmacist's role in developing medication safety policies and procedures, drug distribution and control systems, preventing medication errors and adverse drug reactions.

0771. Organization of Pharmaceutical Services in Health-Care Facilities II. Cr. 3.

Prereq: PHA 0770 and consent of instructor. Determining the pharmaceutical service needs of health-care facilities; developing special services such as drug information, special formulation; utilization of electronic data processing; personnel training and management.

0775. Drug Literature Evaluation. Cr. 1.

Prereq: graduate standing. Basic concepts of information retrieval and dissemination. Systematic approach to information retrieval, techniques of drug surveillance, and the critical evaluation of the clinical literature.

0776. Social Policies and Health-Care. Cr. 3.

Prereq: consent of instructor. Social issues, policies, and legislative action and their implications in the practice and procedures in the provision of health-care.

0777. Therapeutic Aspects of Disease I. Cr. 2.

Prereq: consent of adviser and admission to doctoral program. The pathophysiology of disease states, the clinical pharmacology and therapeutic applications of the drugs used in the treatment of disease.

0778. Therapeutic Aspects of Disease II. Cr. 2.

Prereq: PHA 0777. Continuation of Pharmaceutics 0777.

0779. Therapeutic Aspects of Disease III. Cr. 2.

Prereq: PHA 0778. Continuation of Pharmaceutics 0778.

0780. Advanced Clinical Pharmacy Clerkship I. (0,12). Cr. 3.

Prereq: consent of instructor and admission to doctoral program. Prereq. or coreq: PCL 0730. Discussions and observations on the major disease entities; emphasizes various drug therapy and methodology of choice. Participation in clinical aspects of patient rounds, medication profile and adverse drug reaction systems, admission and discharge drug histories and involvement in in-service clinical education programs.

0781. Advanced Clinical Pharmacy Clerkship II. (0,12). Cr. 3.

Prereq: PHA 0780. Continuation of Pharmaceutics 0780.

0782. Advanced Clinical Pharmacy Clerkship III. (0,12). Cr. 3.

Prereq: PHA 0781. Continuation of Pharmaceutics 0781.

0790. Directed Study in Pharmaceutics. Cr. 2-5 (Max. 7).

Prereq: consent of adviser and graduate officer. Minor research problems in pharmaceutics.

0794. Professional Doctoral Seminar in Pharmacy. (2,0). Cr. 1 (Max. 4).

Prereq: consent of adviser and admission to doctoral program. Weekly meetings of departmental faculty, invited guests, and

qualified students for presentation and discussion of contemporary professional topics during three quarters.

0795. Professional Doctoral Project in Pharmacy. Cr. 2 (Max. 2).

Prereq: consent of adviser and admission to doctoral program. Independent exploration of an approved area of professional intellectual interest and preparation of an acceptable manuscript suitable for publication.

0796. Research in Clinical Pharmacy. Cr. 3-6 (Max. 9).

Prereq: consent of instructor. Clinical experience provided in hospitals, other health-care institutions and in community pharmacies involving observations and projects bringing the student into close contact with the patient and all members of the health-care team.

0797. Hospital Pharmacy Seminar. Cr. 1-2 (Max. 4).

Prereq: consent of adviser. Reports and discussions by students and members of the staff concerning current developments in the field of hospital pharmacy.

0798. Seminar. Cr. 1-2 (Max. 4).

Prereq: consent of adviser. Reports and discussions by students and members of the staff concerning current developments in the field of pharmaceutics.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0800. Pharmaceutical Colloids, Emulsions and Suspensions. Cr. 3.

Prereq: PHA 0701. Presentation of theory basic to technology of pharmaceutical colloids, emulsions and suspensions.

0801. Pharmaceutical Colloids, Emulsions and Suspensions Laboratory. Cr. 2.

Prereq. or coreq: PHA 0800.

0805. Pharmacokinetics and Biopharmaceutics I. Cr. 3.

Prereq: consent of instructor. Discussion of the kinetics of drug absorption, distribution, metabolism, and excretion; the utilization of these considerations in pharmaceutical formulation and design of dosage forms.

0806. Pharmacokinetics and Biopharmaceutics II. Cr. 3.

Prereq: PHA 0805 and consent of instructor. Continuation of Pharmaceutics 0805.

0810. Pharmaceutical Aspects of Dermatology. Cr. 3.

Presentation of dermatological and pharmaceutical theories basic to formulation of topical pharmaceuticals.

0860. Special Topics in Pharmaceutics. Cr. 3 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Recent developments in pharmaceutics. Topics under investigation and of current interest offered in different quarters.

0890. Hospital Pharmacy Directed Study. Cr. 2-5 (Max. 7).

Prereq: consent of adviser and graduate officer. Minor research problems in hospital pharmacy.

0895. Research in Pharmaceutics. Cr. 3-6 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmaceutics, including the application of basic principles to graduate study and research.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Pharmacognosy (PCG)

***0472. Pharmacognosy. Cr. 4.**

Prereq: P C 0440. Sources, properties and uses of drugs of vegetable and animal origin.

0607. Microscopy of Drugs. (1,7). Cr. 3.

Prereq: PCG 0472 or former 0471. History of drugs and their common adulterants; laboratory exercises requiring detailed study of known specimens, followed by analyses of unknown powders and mixtures.

0610. Vegetable Drugs. Cr. 3-4.

Prereq: consent of instructor. Nature and properties of official and non-official drugs belonging to both the lower and higher plants. Consideration given to microscopic appearance and structure.

0615. Antibiotic Drugs. (2,8). Cr. 2-4.

Prereq: BIO 0522, 0620; or consent of instructor. Antibiotic drugs with respect to their history, production, methods of standardization and pharmaceutical importance. Field trips to industrial plants.

0690. Directed Study in Pharmacognosy. Cr. 1-4 (Max. 4).

Prereq: fourth or last professional year standing. Open only to undergraduates with consent of instructor and adviser.

0698. Seminar. Cr. 1-3 (Max. 3).

Prereq: consent of instructor and adviser. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0750. Advanced Pharmacognosy I. (1,8). Cr. 4.

Prereq: consent of instructor. Pharmaceutical properties and techniques employed in isolation, identification, purification, and evaluation of natural drug products.

0751. Advanced Pharmacognosy II. (1,8). Cr. 2-4.

Prereq: BIO 0522, 0620; or consent of instructor. Problems in pharmaceutical manufacture and standardization of biologicals and other products derived from microorganisms and official standards and requirements governing these products.

0790. Directed Study in Pharmacognosy. Cr. 2-5 (Max. 7).

Prereq: consent of adviser and graduate officer. Opportunity for qualified advanced students to conduct research in the field of vegetable drugs.

0798. Seminar. Cr. 1-2 (Max. 4).

Prereq: consent of instructor. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0860. Special Topics in Pharmacognosy. Cr. 3 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Recent developments in pharma-

cognosy. Topics under investigation and of current interest offered in different quarters.

0895. Research in Pharmacognosy. Cr. 3-6 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmacognosy, including the application of basic principles to graduate study and research.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Pharmacology (PCL)

***0425. Introduction to Pathologic States and Processes. Cr. 3.**

Prereq: BIO 0685; coreq: P C 0440. Structural and functional changes of body tissues and organs.

***0553. Pharmacology I. (4,3). Cr. 5.**

Prereq: PCL 0425; coreq: P C 0441. General principles of pharmacology and toxicology; influence of drugs on the autonomic nervous system, the cardiovascular and excretory systems.

***0554. Pharmacology II. (3,3). Cr. 4.**

Prereq: PCL 0553; coreq: PHA 0560. Actions of medicinal agents on the central nervous system (such as stimulants, psychotropics, analgesics, general anesthetics); local anesthetics.

***0555. Pharmacology III. (3,3). Cr. 4.**

Prereq: PCL 0554; coreq: PHA 0561. Endocrine products and synthetics used as medicinal agents; influence of drugs on endocrine secretions; cytotoxic drugs; and toxicities of heavy metals, certain gases and vapors.

0650. Basic Pharmacological Concepts of Drugs of Abuse. Cr. 2.

Not open to pharmacy students. Fundamental mechanisms involved in drug action, particularly as they relate to centrally acting substances of abuse.

0689. Adverse Drug Reactions. Cr. 3.

Prereq: last professional year standing. Potential adverse reactions and toxicities from concomitant drug administration and from injudicious drug applications in certain existing disease states.

0690. Directed Study in Pharmacology. Cr. 1-4 (Max. 4).

Prereq: last professional year standing and consent of instructor and adviser.

0698. Seminar. Cr. 1-3 (Max. 3).

Prereq: consent of instructor and adviser. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0710. Advanced Pharmacology I. Cr. 3.

Prereq: consent of instructor. Study of the theories of drug action; cellular pharmacology.

0711. Advanced Pharmacology II. Cr. 3.

Prereq: consent of instructor. Continuation of Pharmacology 0710.

0712. Screening Methods. (2,6). Cr. 4.

Prereq: consent of instructor. Critique of those methods used for evaluating pharmacological actions of new chemical agents.

0713. Advanced Pharmacology Laboratory I. (0,6). Cr. 2.

Prereq. or coreq: PCL 0710. Laboratory experimentation on principles discussed in Pharmacology 0710.

0714. Advanced Pharmacology Laboratory II. (0,6). Cr. 2.

Prereq. or coreq: PCL 0711. Laboratory experimentation on principles discussed in Pharmacology 0711.

0715. Biochemical Pharmacology. Cr. 3.

Prereq: consent of instructor. Discussion of the principles of the biochemical aspects of drug action.

0716. Biochemical Pharmacology Laboratory. (0,12). Cr. 4.

Prereq: consent of instructor. Laboratory experimentation on subjects discussed in Pharmacology 0715.

0730. Clinical Pathology. Cr. 3.

Prereq: consent of instructor. The objectives and techniques involved and the significance of the various clinical laboratory tests, values, and procedures requested by physicians for use in the diagnosis and treatment of disease.

0740. Pathologic States and Processes. (3,0). Cr. 3.

A survey of morphologic aspects of disease and the production of the pathologic state with particular reference to chemical, mechanical, and microbiologic influences. Students are encouraged to correlate these findings with the physiologic and pharmacologic concepts of health and disease.

0760. Clinical Pharmacology. Cr. 3.

Discussions and demonstration of the clinical basis for evaluation of the therapeutic and toxic effects of drugs in man. Cases selected from current hospital population used to illustrate general principles and specific problems. Classes held at Sinai Hospital of Detroit.

0790. Directed Study in Pharmacology. Cr. 2-5 (Max. 7).

Prereq: consent of adviser and graduate officer. Investigations in pharmacology.

0798. Seminar in Pharmacology. Cr. 1-2 (Max. 4).

Prereq: consent of adviser. Reports and discussions by students and staff members concerning recent advances in pharmacology.

0860. Special Topics in Pharmacology. Cr. 3 (Max. 9, M.S.; max. 18, Ph.D.)

Prereq: consent of instructor. Recent developments in pharmacology. Topics to be announced in Schedule of Classes.

0895. Research in Pharmacology. Cr. 3-6 (Max. 9, M.S.; max. 18, Ph.D.)

Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmacology, including the application of basic principles to graduate study and research.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Approved Elective Courses in the Humanities and Social Sciences*

The pharmacy curriculum provides for the selection of elective courses from the numerous offerings of other colleges or departments within the University. Other sections of this bulletin should be consulted for course descriptions.

The following list of approved electives are accepted for degree credit without prior approval of an adviser. These courses are designed for non-majors in the areas represented and prerequisites are minimal. Courses not listed may be elected provided that the stated prerequisites are met and prior approval of an adviser is obtained. Normally, no more than twelve credits in any single area will be accepted as degree credit.

Anthropology (ANT)

	<i>credits</i>
0210. Introduction to Anthropology	4
0211. Introduction to Physical Anthropology	4
0520. Social Anthropology	4

Art History (A H)

0100. Introduction to the Elements of Art	4
0110. Survey of Art History I	4
0111. Survey of Art History II	4
0112. Survey of Art History III	4

Economics (ECO)

0102. Survey of Economics II	4
0103. Survey of Economics III	4
0541. Labor Problems I (S W 0713)	4
0584. Economics of Social Welfare (S W 0707)	4
0641. Labor Problems II (S W 0714)	4

English (ENG)

0209. Techniques of Expository Writing	4
0210. Techniques of Imaginative Writing	4
0220. Introduction to Contemporary English: Usage and Meaning ..	4
0225. Major Authors in World Literature to the Renaissance	4
0226. Major Authors in World Literature: Renaissance to Twentieth Century	4
0227. Major Authors in World Literature: Twentieth Century	4
0228. Introduction to Folklore	4
0231. Introduction to Poetry	4
0232. Introduction to Fiction	4
0233. Introduction to Drama	4
0234. The English Bible as Literature	4
0242. Major Authors in English Literature to the Nineteenth Century	4
0243. Major Authors in English Literature of the Nineteenth and Twentieth Century	4
0270. Major Authors in American Literature to the Twentieth Century	4

*Election of a minimum number of approved elective courses is required of all students in the undergraduate professional curriculum; of these four credits must be in an English 0200 level course.

0271. Major Authors in American Literature of the Twentieth Century	4
0275. Introduction to Afro-American Literature	4

Marketing (MKT)

0532. Business Communications	4
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History (HIS)

	<i>credits</i>
0110. The World and the West: Foundations	4
0120. The World and the West: Medieval and Early Modern Era, 800-1700	4
0130. The World and the West: The Modern Era since 1700	4
0201. Growth of American Democracy to 1815	4
0202. Growth of American Democracy, 1815-1885	4
0203. Growth of American Democracy since 1885	4
0224. History of Michigan	4

Humanities (HUM)

0101. Art and Music in Western Civilization	4
0110. Humanities Survey I	4
0111. Humanities Survey II	4
0112. Humanities Survey III	4
0201. Introduction to the Humanities: Correlation of Literature with the Visual and Musical Arts	4
0202. Introduction to the Humanities: Correlation of the Visual Arts with the Literary and Musical Arts	4
0203. Introduction to the Humanities: Correlation of Music with Literature and the Visual Arts	4
0485. Humanities and Education	4

Philosophy (PHI)

0201. Introduction to Philosophy	4
0220. Logic I	3
0230. Logic II	3

Political Science (P S)

	<i>credits</i>
0201. The Political Process in the Urban Setting	4
0208. Contemporary Political Ideologies	4
0281. World Politics	4
0511. Public Opinion and the Political Process (SOC 0511) (U P 0535)	4
0512. Political Parties and Elections	4
0513. The Legislative Process	4
0516. American Political Reform Movements	4
0517. State and Local Government	4
0533. Bureaucracy, Public Policy and Power Structure (U P 0545)	4
0540. American Legal Systems and Processes	4
0569. American Political Thought	4

Psychology (PSY)

0198. Introductory Psychology	4
0330. Psychology of Adjustment	4
0430. Abnormal Psychology	4

Sociology (SOC)

0201. Introduction to Sociology	4
0202. Social Problems	4
0460. Social Psychology	4

Speech (SPH)

0200. Effective Speech	4
0210. Persuasion	4
0520. Group Communication and Human Interaction	4

FACULTY OF ALLIED HEALTH PROFESSIONS

HISTORY

The allied health programs at Wayne State University — anesthesia, medical technology, occupational therapy and physical therapy — developed from separate professional educational and training programs. The earliest, occupational therapy, originated in special education in 1944 and became an approved occupational therapy program in 1946; ten years later it was placed in the curriculum of the College of Liberal Arts. In 1963 the School of Medicine undertook the responsibility for the teaching of occupational therapy, and in 1964 its dean initiated the second allied health program, physical therapy. Both of these programs were housed in various clinical facilities.

Medical technology began in the College of Liberal Arts in 1945. In 1964 it became a program of the Department of Pathology and eight years later became a separate department in the School of Medicine. Medical technology and the other paramedical disciplines were formed into the Division of Allied Health Programs by the Dean of the School of Medicine in 1970. In 1971 a nursing program in anesthesia was added to the Division, and a year later the departmental administrative offices with their professional instructional programs were moved to newly renovated quarters on the downtown medical campus.

In January 1974 the Division of Allied Health Programs became affiliated with the College of Pharmacy to form the College of Pharmacy and Allied Health Professions.

LOCATION

Located at 1400 Chrysler Freeway, the Faculty of Allied Health Professions is in the immediate vicinity of the Detroit Medical Center, location of the Wayne State University School of Medicine and the Shiffman Medical Library. Within the Medical Center are six clinical facilities: Harper-Webber, Grace, Hutzel, Children's, and Detroit General Hospitals, and the Rehabilitation Institute; these provide opportunities for clinical training. Proposed additions to the Center include an out-patient clinic for ambulatory care, and an additional city hospital.

PROGRAMS

Medical technology, occupational therapy, physical therapy, and anesthesia are among the allied health programs which contribute in vital ways to the practice of medicine. These fields of study lead to interesting and rewarding careers — for the medical technology student, a career in the laboratory; for the student of occupational or physical therapy, a career of direct involvement with patients in a clinical setting; and for the nurse anesthetist, a career as a member of a highly skilled, efficient operating room team.

Students in medical technology learn the scientific principles and theories behind the many laboratory tests performed to aid the diagnosis of disease. During the latter part of their curriculum, they become proficient in the performance of these tests, and familiar with the practical aspects of the hospital laboratory. The work of the medical technologist is indispensable to effective care of the sick, because results of their analytical work often establish a diagnosis which must be made before medical care can be instituted.

Education in occupational and physical therapy leads the student to a concept of rehabilitation which considers not only the disease or injury which leads to disability but brings to bear forces to ameliorate the social, psychological and vocational problems created by disability. The lessening or elimination of these problems is the goal of the therapist.

The occupational therapist uses evaluative techniques and activity, physical and mental, to attain this goal. The physical therapist uses physical agents, therapeutic exercises, and other rehabilitation procedures. The doctor's referral determines the need for occupational or physical therapy and guides the therapists in the selection of the proper treatment. The educated therapist finds satisfaction in the awareness of social changes and the feeling of responsibility for recognizing and meeting social needs, both as an individual and as a member of a vital health profession.

The nurse anesthetist is a specialist who, as a member of a health care team, is qualified to administer anesthesia to patients for all types of operations under the direction of a physician. In many places, the nurse anesthetist works directly with the physician-anesthesiologist, while in other situations the anesthetist functions directly under the surgeon.



ACADEMIC INFORMATION

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to allied health students.

UNDERGRADUATE ADMISSION

PREPROFESSIONAL PROGRAM

The Office of Admissions is located in room 116, Administrative Services Building, 5950 Cass Avenue (corner of Cass and Antoinette), Detroit, Michigan 48202. Telephone 577-3560. Admissions counselors are available for personal conferences to aid the prospective student.

Preprofessional programs in medical technology, occupational therapy, and physical therapy are taken in the College of Liberal Arts, and all students must apply for admission to that College.

RECOMMENDED HIGH SCHOOL PREPARATION

Students who plan to enter the University as freshmen should have included in their high school programs at least three years of English, one year of algebra, one year of plane geometry, at least one course in a laboratory science, and at least two years of a foreign language. Some college programs require additional work in mathematics and science.

ADMISSION TO PROFESSIONAL PROGRAMS

Each of the Allied Health programs is limited in the number of applicants that can be accepted. This limitation is created not only by the number of faculty members available, but also by the number of slots available in clinical facilities where much of the clinical practice is conducted at a 1:1 or 1:2 faculty-to-student ratio.

Students are admitted to the professional program annually in June or September. By May 1 of the sophomore year the student should make application to the program of his choice. However, because of special requirements for each program, students are urged to contact the department for counseling a year before they plan to make application. Applicants must have completed all course requirements with an average equal to or greater than 2.5 ($A = 4.0$).

All applicants to the professional programs will be required to take the Allied Health Professions Admissions Test (AHPAT). The AHPAT test is a new standardized evaluation procedure that has been developed similar to the Medical College Admissions Test. It provides admissions officers throughout the country with comparative data on an applicant's verbal and quantitative abilities, reading comprehension and science preparation. This test will be administered several

times each year at Wayne State University as well as other locations throughout the country. Applicants should plan to take this test no later than the February or March preceding entry into the professional programs. Application forms and detailed information can be obtained from the Admissions Office, College of Pharmacy and Allied Health Professions.

Although academic achievement is important, personal qualities are considered of equal importance since the students selected will eventually be working as members of a team in the delivery of health care. Therefore, criteria for selection is also based on such qualities as maturity, motivation, knowledge of the profession, ability to communicate, personal integrity, and empathy for others. Evidence of good physical and mental health is required. Consequently, evaluations from faculty and academic advisers, as well as a personal interview, are given great weight in the selection of candidates by faculty selection committees.

ACADEMIC ADVISING

A staff of academic advisers is available in the Liberal Arts Advising Office, second floor, Mackenzie Hall, for students interested in medical health professions. Students should confer with professional program advisers whenever they have questions about degree requirements, academic regulations, course elections, programs of study, or difficulties in their academic work. Course elections are arranged in consultation with the professional program advisers.

Information on advising for specific programs can be obtained from the Office of the Faculty of Allied Health Professions; telephone: 577-1047.

NORMAL PROGRAM LOAD

The requirements for graduation are based upon a normal program of fifteen credits a quarter for twelve quarters. Because courses are of varying length, students cannot always arrange programs of exactly fifteen credits; hence the normal load is fourteen to seventeen credits.

PROBATION

If a student's work falls below the required average for pre-professional or professional work, he will be placed on probation. If he incurs a serious honor point deficiency in a quarter, or remains on probation for more than one quarter, he will not be allowed to re-register in the College unless he obtains permission from the Office of the Dean. Such permission will be granted only after an appraisal of the student's situation and some assurance from the student that the previous causes of failure will not be operative in the proposed program.

Curriculum Probation — A student whose honor point average falls below the required average will be placed on curriculum probation. If he incurs a serious honor point deficiency in a quarter, or remains on probation for more than one quarter, he will not be allowed to remain in his curriculum

unless he obtains permission from the department head of that curriculum.

Removal of Probation—The student will be removed from curriculum probation at the end of any quarter in which he achieves the overall average required in his program.

ATTENDANCE

Regularity in attendance is necessary for success in college work. Each instructor at the beginning of the course will announce his attendance requirements.

DEAN'S LIST OF HONOR STUDENTS

Full-time students whose honor point averages are 3.5 or above in a given term are eligible for citation for distinguished scholarship. Part-time students are eligible for inclusion in the Dean's List of Honor Students after each accumulation of twelve credits.

STUDENT RIGHTS AND RESPONSIBILITIES

— see page 15.

The Faculty reserves the right to dismiss at any time a student who does not appear to be suited for the work or whose conduct or academic standing is regarded as unsatisfactory.

BACHELOR'S DEGREE REQUIREMENTS

Upon completion of the requirements listed in each of the programs the College of Pharmacy and Allied Health Professions grants the following undergraduate degrees:

Bachelor of Science in Anesthesia

Bachelor of Science in Medical Technology

Bachelor of Science in Occupational Therapy

Bachelor of Science in Physical Therapy

University Requirement in American Government

— see page 11.

CURRICULUM REQUIREMENTS

The curriculum is a program of study designed in terms of the student's interest or of his preprofessional or professional direction. With the consent of adviser, a student may change his curriculum at the beginning of any quarter in which he changes his objective. *The student should consult regularly with his academic or major adviser about his progress in completing requirements.*

PROFICIENCY EXAMINATION IN COMPOSITION

At the beginning of the junior year, all students are required to take the Proficiency Examination in Composition. Any student who fails to pass this examination is referred for

corrective work either to the Composition Clinic or to his major department. A student referred to his major department must later pass a qualifying examination given by the Composition Clinic.

RESIDENCE

The last forty-five credits of work applicable to the degree, exclusive of credit by special examination, must be completed in an undergraduate college or school of Wayne State University.

TIME LIMITATION

Because of rapid changes in technology and in the methods and concepts of patient care, students in the allied health programs must complete their preprofessional programs in six years and their professional program in two years. Students who interrupt their academic program will have to apply for reinstatement on an individual basis to have their performance evaluated. They may be required to pass examinations comparable to those given to current students at that level sought for re-entry into the program.

ANESTHESIA

Office: Detroit General Hospital
 1326 St. Antoine, Detroit, Michigan 48226
 (telephone 224-0208)
 Chairman: John F. Garde, B.S., CRNA, Instructor

Instructor

Celestine M. Harrigan, B.A., CRNA

Adjunct Instructor

Carrie Blackwell, B.S.N., CRNA

The resources of the College of Liberal Arts and the basic science and clinical departments of the Faculty of Allied Health Professions have been combined to establish a degree program in anesthesia. This program replaces the certificate program in the Department of Anesthesiology. Further information regarding the program can be obtained from the chairman at the above address.

Anesthesia is a dynamic health profession which deals primarily with methods and procedures for rendering a patient insensible to pain and emotional stress during surgical, obstetrical, and some diagnostic and medical procedures. Professional services are also rendered in the field of respiratory care, cardio-pulmonary resuscitation, and post-anesthetic care.

The nurse anesthetist is a specialist, who as a member of a health care team, is qualified to administer anesthesia to patients for all types of operations under the direction of a physician. In many places, the nurse anesthetist works with the physician-anesthesiologist, while in other situations, the anesthetist functions directly under the surgeon.

Primary goals of this degree program are to provide the interested student with a higher level of scientific background and clinical experience in the field of anesthesia, and to qualify him for instructional and supervisory roles. The courses of study offered by Wayne State University are approved by the American Association of Nurse Anesthetists. Upon completion of the basic science and clinical requirement, the student is eligible to take the national qualifying examination for membership into the American Association of Nurse Anesthetists and is then recognized as a Certified Registered Nurse Anesthetist. The facilities of Detroit General Hospital and other W.S.U. affiliated institutions of the Detroit Medical Center are utilized for the professional program.

DEGREE PROGRAM

Bachelor of Science in Anesthesia

The program leading to a Bachelor of Science in Anesthesia is open only to professional registered nurses. The degree program is arranged as follows:

The preprofessional curriculum (91 credits) consists of the liberal arts courses taught by the faculty of the College of Liberal Arts.

The professional curriculum (101 credits) consists of the courses taught by the members of the Department of Anesthesiology of Detroit General Hospital in conjunction with the Faculty of Allied Health Professions. Students receive a training stipend.

The requirements for admission into the preprofessional curriculum are those required by the College of Liberal Arts.

The requirements for admission into the professional curriculum are as follows:

1. Graduation from an accredited school of nursing.
2. Licensure as a registered professional nurse in at least one state.
3. Completion of the preprofessional science requirement.

Students are admitted to the professional curriculum in the spring and fall quarters. The beginning date is the same as that for the College of Liberal Arts.

PREPROFESSIONAL PROGRAM

Courses in this program are taken under direction of the College of Liberal Arts:

	<i>credits</i>
Biology 0103	5
Chemistry 0102, 0103, 0104	12
English 0150 and one 0200 level course	8
Political Science 0101	4
Psychology 0198, 0340	8
Sociology 0201	4
Social Science Electives	8
Speech 0200	4
Humanities Electives	8
Thirty credits may be received by taking an examination in Medical-Surgical Nursing	30

PROFESSIONAL PROGRAM — UNDERGRADUATE

Courses in this program are taken under the direction of the Faculty of Allied Health Professions:

	<i>credits</i>
Anesthesia 0300.....Orientation	0
Anesthesia 0310.....History of Anesthesia: Ethics, Legal Aspects and Administration	2
Anesthesia 0340.....Pharmacology of Anesthesia I	3
Anesthesia 0350.....Safety and Technical Problems of Anesthetic Procedures	2
Anesthesia 0360.....Principles of Clinical Anesthesia I	6
Anesthesia 0361.....Principles of Clinical Anesthesia II	3
Anesthesia 0362.....Principles of Clinical Anesthesia III	2
Anesthesia 0363.....Respiratory Care	3
Anesthesia 0370.....Clinical Anesthesia Practicum I	6-12
Anesthesia 0371.....Clinical Anesthesia Practicum II	6-12
Anesthesia 0372.....Clinical Anesthesia Practicum III	6-12
Anesthesia 0420.....Anatomy and Physiology for Anesthetists I ..	5
Anesthesia 0421.....Anatomy and Physiology for Anesthetists II ..	5
Anesthesia 0430.....Anesthesia Seminar	1-2

Anesthesia 0440.....	Pharmacology of Anesthesia II	4
Anesthesia 0441.....	Pharmacology of Anesthesia III	3
Anesthesia 0442.....	Pharmacology of Anesthesia IV	3
Anesthesia 0470.....	Clinical Anesthesia Practicum IV	6-12
Anesthesia 0471.....	Clinical Anesthesia Practicum V	6-12



MEDICAL TECHNOLOGY

Office: 233 School of Medicine, 1400 Chrysler Freeway,
Detroit, Michigan 48207 (telephone 577-1384)

Mailing Address: Wayne State University
Detroit, Michigan 48202

Chairman: Dorothy Skinner, M.A., M.T. (ASCP),
Assistant Professor

Instructors

James Adams, M.S., M.T. (ASCP), Norma Dresch, M.S.,
M.T. (ASCP), Ann Wallace, M.S., M.T. (ASCP)

Adjunct Instructors

Charlotte Bartzack, M.S., M.T. (ASCP), Kathryn Beattie,
B.S., M.T. (ASCP)BB, Roger Calam, M.S., Mara Christiansen,
B.S., M.T. (ASCP)BB, Jean Garza, B.S., M.T. (ASCP), Grace
Hill, M.S., M.T. (ASCP)BB, Mary C. McGrath, M.S., M.T.
(ASCP), Joyce Salancy, M.S., M.T. (ASCP), Patricia Young,
M.S., M.T. (ASCP)BB

The programs offered by the Department of Medical Technology utilize the facilities of the College of Liberal Arts, the Faculty of Allied Health Professions, and the pathology departments and clinical laboratories of hospitals affiliated with the School of Medicine.

Medical technology is an allied health profession offering many challenging opportunities for men and women with an aptitude in the basic sciences and an interest in a career spent in giving indispensable aid to the effective practice of medicine. The Medical Technology Program at Wayne State University provides the interested student with the technical knowledge and specialized skills necessary to the profession. The work of the medical technologist usually centers in the hospital and clinical laboratory and involves performance of the following duties:

1. Provision of accurate diagnostic information to the physician through performance of a vast array of laboratory tests.
2. Comparative evaluation and utilization of the best possible methods of performance of these tests.
3. Understanding and operation of sophisticated laboratory equipment.
4. Effective teaching and supervision of students and auxiliary laboratory personnel.

While the majority of medical technologists work in hospital or other clinical laboratories, graduates are also prepared for positions in federal, state and local health departments, in industrial or research laboratories, and in medical technology education.

STUDENT AID

Undergraduate Program

The University offers opportunities to students in need of financial assistance to meet the expenses of their education. Information about obtaining assistance through scholarships and loans is available from the Wayne State University Office of Scholarships and Financial Aids, 222 Administrative Services Building, Detroit, Michigan 48202.

In addition, the Michigan Society of Medical Technologists offers a scholarship or loan to qualified junior or senior students in the professional program. Information and applications may be secured from the Chairman, Department of Medical Technology.

Graduate Program

The Wayne State University Office for Graduate Studies offers a number of Graduate-Professional Scholarships to qualified applicants, covering resident tuition and some other regularly assessed fees. Information and applications may be secured from the Chairman, Graduate-Professional Scholarship Committee, the Office for Graduate Studies, 1056 Mackenzie Hall, Wayne State University, Detroit, Michigan 48202.

In addition, other scholarships and student stipends may be available from time to time. For information, contact the Chairman, Department of Medical Technology, as above.

STUDENT ORGANIZATIONS

All students may have membership in the local, state, and national organizations of the Society of Medical Technologists.

Alpha Delta Theta is a professional organization open to women students in medical technology. The objectives of this organization are to unite women preparing for and engaging in medical technology, and to be of service to others.

DEGREE PROGRAMS

BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY

The program leading to the Bachelor of Science degree in Medical Technology fulfills the requirements for medical technology education of the Council on Medical Education of the American Medical Association. A graduate from Wayne State University with the degree of Bachelor of Science is eligible to take the national examination of the Registry of Medical Technologists of the American Society of Clinical Pathologists. The degree program is arranged as follows: (see Courses of Instruction beginning on page 505).

credits

The freshman and sophomore years constitute the preprofessional curriculum and are the liberal arts courses taught by the faculty of the College of Liberal Arts 90

The junior year begins the professional curriculum and is taught by the Department of Medical Technology and the Faculty of Allied Health Professions 49

The senior year consists of twelve months clinical experience in the laboratories in one of the affiliated hospitals. Senior students receive a monthly stipend 56

Total 195

A student applying for acceptance into the preprofessional curriculum in the College of Liberal Arts should have taken these courses in high school:

high school units

Physics	1
Chemistry	1
Algebra	1½
Geometry	1
Trigonometry	½

Recommended: Latin, German or French.

Since the College of Liberal Arts does not offer courses covering the first 1½ units of work in algebra and geometry, entrance deficiencies in these subjects will have to be made up at a high school. Before the first course in college chemistry can be taken, the student must pass a mathematics placement test which covers two years of high school algebra.

A 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.

PROFESSIONAL PROGRAM

The junior class is admitted to the professional curriculum in September only. The number of students in the medical technology curriculum has increased making it impossible to accept into the professional program all students who have completed the prerequisites. Therefore, an application for admission to the program must be submitted to the Department of Medical Technology by May 1 of the year one wishes to enter the professional program.

The Admissions Committee is composed of in-service medical technologists on the faculty and adjunct faculty of the Department of Medical Technology, with a representative from the graduate program in medical technology. The Admissions Committee will interview and consider for admission all those students who —

1. Have an accumulative honor point average of 2.6 the end of the winter quarter prior to the fall program.

2. Will have completed all prerequisites by the end of the summer quarter prior to the fall program.

3. Have had a psychological interview at Health Service, Fifth Floor, Mackenzie Hall (appointment to be made at least two weeks prior to May 1 deadline).

4. Submits in addition to the application the following:

A. References from: (obtain forms from the Medical Technology office)

1. one employer
2. one science faculty member
3. one non-science faculty member

B. Autobiography (of approximately 500 words)

C. Transcript from Wayne through the winter quarter prior to fall program. (If one has transferred to Wayne, a transcript from all former undergraduate schools must be included.)

The Admissions Committee members, knowing that clinical positions are limited, must look critically at each student applying for admission. They are looking for those persons who will not only be academically able to satisfy the requirements but who are knowledgeable of the profession and its demands and who have immediate goals to advance the field of medical technology through research, teaching and service. Emotional stability, maturity and ability to communicate with others are among the factors used in evaluation of the student.

The decision on the application will be one of the following:

1. Accepted
2. Denied
3. Conditional (If you have courses in progress which are prerequisites to the program, acceptance will not be final until satisfactory completion of the requirements.)

All requests for additional information should be addressed to the Chairman, Department of Medical Technology, College of Pharmacy and Allied Health Professions.

MASTER OF SCIENCE IN MEDICAL TECHNOLOGY

The Department of Medical Technology's objective is to graduate highly qualified teaching, supervisory and administrative technologists. A teaching obligation set by the Department of Medical Technology, a course on teaching techniques and management courses provide the student with experience and knowledge necessary for effective teaching and supervision.

Students in the Master of Science degree program will receive a M.S. in medical technology upon completing:

Required courses	41 credits
Electives	7 credits
Total	48 credits

Basic electronics, instrumentation, computer science and biostatistics strengthen the supervisory and administrative technologist's ability to advise and participate in selection, incorporation and maintenance of instrumentation and quality control programs in the laboratory. Electives may be selected in teaching, management or technical areas depending upon the student's interest. Three seminars — one each on teaching, administration and technical aspects of the laboratory — provide the settings in which graduate students with differing work experiences can formulate, evaluate and exchange ideas.

An application for admission to the Master of Science program may be secured from the Wayne State University Graduate Admissions Office, 5950 Cass Avenue, Detroit, Michigan 48202. (Telephone: 313 - 577-3560.)

Deadline for applications for admission: Admissions into the graduate program are limited to spring and fall quarters. Applications for spring admission are due by November 15 and for fall by April 15.

Available positions in the graduate program will be filled by the best qualified applicants. Applicants will be interviewed and notified of admission status with the Department of Medical Technology within one month after deadline dates for applications.

All requests for additional information should be addressed to the Chairman, Department of Medical Technology.

REQUIRED COURSES

Preprofessional Program — Undergraduate

Courses in this program are taken under direction of the College of Liberal Arts:

First Year

	<i>credits</i>
Biology 0103, 0160, 0140 or 0220	13
Chemistry 0107, 0108	8
Chemistry 0110	4
English 0150	4
Medical Technology 0208	1
Medical Technology Seminar	1
Physics 0213	4
Social Science Elective	4
Speech 0200	4

Second Year

Biology 0187	6
Chemistry 0224, 0226, 0227	11
English Elective	4
Humanities Elective	4
Mathematics 0180 (or equivalent)	5
Physics 0214	4
Social Science Electives	8
Electives (any area of interest)	6-8

Professional Program—Undergraduate

Basic science courses in this program are taken under the direction of the Faculty of Allied Health Professions.

Third Year

	<i>credits</i>
Pathology 0500	2
Biochemistry 0301, 0303, 0305 General Biochemistry Lectures	6
Biochemistry 0302, 0304, 0306 General Biochemistry Laboratory	6
Medical Technology 0301 Introduction to Electronics	2
Medical Technology 0302 Hematology I	6
Medical Technology 0304 Immunohematology	4
Medical Technology 0305 Hematology II	4
Medical Technology 0306 Clinical Methods	3
Medical Technology 0308 Radiological Physics for Medical Technologists	1
Medical Technology 0309 Medical Technology Professional Seminar	1
Microbiology 0551 Bacteriology and Immunology	6
Microbiology 0552 Pathogenic Fungi and Parasites	4
Electives	4-8

Fourth Year

Medical Technology 0405 Hematology III	2
Medical Technology 0404 Laboratory Supervision	2
Microbiology 0553 Pathogenic Microorganisms	4

The following courses are taken at a hospital affiliated with the College of Pharmacy and Allied Health Professions for this purpose:

Medical Technology 0400, 0401, 0402, 0403	Medical Technology Laboratory	42
		195

Professional Program—Graduate

Computer Science 0501 Computers and Research	4
Management 0706 Management and the Organization	4
and two of the following three management courses:	
Management 0761 Human Behavior in Organizations	4
Management 0763 Organizational Change and Development	4
Management 0769 Executive Development	4
Medical Technology 0707 Graduate Instrumentation	4
Medical Technology 0709 Instruction in Teaching Techniques	4
Medical Technology 0797 Medical Technology Seminar	3
Medical Technology 0798 Terminal Project	5
Physics 0570 Basic Electronics	4
Physiology 0767 Introductory Biostatistical Methods	5
Plus electives to total	48

Cognate Courses

School of Medicine

	<i>credits</i>
Biochemistry 0762 Biological Macromolecules	3
Biochemistry 0763 Analytical Techniques	4
Biochemistry 0766 Bioenergetics	3
Microbiology 0753 Special Topics in Microbiology	1-5
Microbiology 0756 Descriptive Bacteriology	2
Microbiology 0760 Immunology	3
Microbiology 0780 Microbial Genetics	3

College of Education

Theoretical and Behavioral Foundations 7661	Evaluation and Measurement	3-4
Theoretical and Behavioral Foundations 7701	The Role of the Teacher in Guidance	3

College of Liberal Arts

Biology 0506 General Cytology	5
Biology 0507 Genetics	4
Biology 0531 Immunology	3
Speech 0210 Persuasion	4
Speech 0520 Group Communication and Human Interaction	4
Speech 0521 Theories of Communication and Persuasion	4
Speech 0620 Leadership and Group Processes in Speech	4
Speech 0621 Organizational Communication	4

School of Business Administration

Management 0762 Managing the Complex Organization	4
Management 0765 Development of Interpersonal Skills for Managers	4

OCCUPATIONAL THERAPY

Office: 1400 Chrysler Freeway, Detroit, Michigan 48207
(telephone 577-1435)

Mailing Address: Wayne State University
Detroit, Michigan 48202

Chairman: Martha E. Schnebly, Ed.D., O.T.R., Professor

Assistant Professors

Suesetta Craig, M.A., O.T.R., Miriam Thralls, M.A., O.T.R.,
Elizabeth Walton, M.Ed., O.T.R.

Instructor

Sydelle Morrison, M.S., O.T.R.

Adjunct Assistant Professors

Elizabeth Boles, M.A., O.T.R., Mildred E. Etter, M.A., O.T.R.

Adjunct Instructors

Christine S. Bosonetto, B.S., O.T.R., Barbara G. Burkhardt,
M.A., O.T.R., Carol A. Decker, B.S., O.T.R., Helen A.
Fuhrman, B.S., O.T.R., Susan A. Harwood, B.S., O.T.R.,
Audrey J. Hillert, B.S., O.T.R., Eleanore Pauline McCurry,
B.S., O.T.R., Sharon Lee Pulju, B.S., O.T.R., Rochelle
Rossman, B.S., O.T.R., Patricia A. Taylor, B.S., O.T.R., Sari
Toth, B.S., O.T.R.

Part-time Faculty

Thomas Sullivan, M.D.

Occupational therapy is the art and science of directing man's participation in selected tasks to restore, reinforce and enhance performance, facilitate learning of those skills and functions essential for adaptation and productivity, diminish or correct pathology and to promote and maintain health.

Occupational therapy provides service to those individuals whose abilities to cope with tasks of living are threatened or impaired by developmental deficits, the aging process, poverty and cultural differences, physical injury or illness, or psychologic and social disability.

Wayne State University offers courses of study which are accredited by the Council on Medical Education of the American Medical Association in collaboration with the American Occupational Therapy Association, and which prepare the student to take the national certification examination.

Occupational therapy education is offered through the degree program, the certificate program for post degree students and the master's programs. All students apply through the University Office of Admissions. The preprofessional program is taken in the College of Liberal Arts. The professional program, taken in the College of Pharmacy and Allied Health Professions, is to be done on a full time basis (minimum load is twelve credits.) Both degree and certificate students must be formally accepted by the College of Pharmacy and Allied Health Professions before admission to the professional program.

DEGREE PROGRAMS

BACHELOR OF SCIENCE IN OCCUPATIONAL THERAPY

The curriculum outlined below, including a minimum of 190 quarter credits, leads to the degree of Bachelor of Science in Occupational Therapy. The student is admitted to the professional program at the beginning of the junior year through formal application procedures and upon completion of the preprofessional program.

Preprofessional Program

Courses in the preprofessional program are taken under the direction of the College of Liberal Arts:

First Year		<i>credits</i>
Biology 0103		5
English 0150, 0209		8
Political Science 0101		4
Psychology 0198		4
Speech 0200		4
Science elective		6
Electives		14
		<hr/> 45
Second Year		
Chemistry 0101		5
Biochemistry 0101		2
English electives		8
Occupational Therapy 0201	Survey of Occupational Therapy	4
Occupational Therapy 0304	Therapeutic Activities I	3
Occupational Therapy 0305	Therapeutic Activities II	3
Physical Science 0191		5
Psychology 0330, 0340, 0360		12
Sociology 0201 and elective		8
		<hr/> 50

Professional Program

Basic science courses in the professional program are taken under the direction of the Faculty of Allied Health Professions.

Third Year		<i>credits</i>
Allied Health Programs 0340	Psychology of Disability	2
Allied Health Programs 0530	Muscle Function	4
Allied Health Programs 0550	Orientation to Clinical Medicine	4
Allied Health Programs 0551	Lectures in Clinical Medicine and Rehabilitation	4
Anatomy 0301	Histology	2
Anatomy 0320	Anatomy I	6
Anatomy 0324	Anatomy II	4
Occupational Therapy 0310	Clinical Psychiatry	4
Occupational Therapy 0311	Techniques and Procedures I	3
Occupational Therapy 0332	Therapeutic Exercise I	3
Occupational Therapy 0515	Techniques and Procedures II	3
Pathology 0500	Fundamentals of Pathology	2
Physiology 0322	Physiology	5

Science elective	8
Elective	5
	<hr/>
	59

Fourth Year

Allied Health Programs 0350... Community Health	2
Occupational Therapy 0350... Rehabilitation Procedures I	3
Occupational Therapy 0405... Clinical Practice	9
Occupational Therapy 0506... Therapeutic Activities III	3
Occupational Therapy 0507... Therapeutic Activities IV	3
Occupational Therapy 0508... Therapeutic Activities V	3
Occupational Therapy 0533... Therapeutic Exercise II	3
Occupational Therapy 0551... Rehabilitation Procedures II	3
Occupational Therapy 0555... Organization and Administration	3
Science electives	4
	<hr/>
	36

CLINICAL PRACTICE

The professional education requirement as stated in the *Essentials of an Approved School of Occupational Therapy* includes not less than twenty-four weeks (six months) of clinical practice.

Upon satisfactory completion of three months of the clinical practice and all other professional program requirements the University grants the student a Bachelor of Science degree in Occupational Therapy.

Following the successful completion of the remaining clinical practice the student is granted a Certificate in Occupational Therapy and is eligible for examination and certification procedures.

POST DEGREE CERTIFICATE PROGRAM

A student who holds a bachelor's degree acceptable to Wayne State University and who has completed minimum academic requirements may enter as a post degree student and earn a certificate in occupational therapy. Prerequisites include at least one course in each of the following areas: biology, physics, chemistry, growth and development, psychology, and sociology. Six months of clinical practice, providing experience in general medicine, psychiatry, and physical dysfunction, are required. Upon satisfactory completion of the professional program the student is granted a Certificate in Occupational Therapy and is eligible for examination and certification procedures.

Preprofessional Program

Courses in the preprofessional program are taken under the direction of the College of Liberal Arts:

	<i>credits</i>
Occupational Therapy 0201... Survey of Occupational Therapy ..	4
Occupational Therapy 0304... Therapeutic Activities I	3
Occupational Therapy 0305... Therapeutic Activities II	3

Professional Program

Basic science courses in the professional program are taken under the direction of the Faculty of Allied Health Professions.

	<i>credits</i>
Allied Health Programs 0340... Psychology of Disability	2
Allied Health Programs 0530... Muscle Function	4
Allied Health Programs 0550... Orientation to Clinical Medicine ..	4
Allied Health Programs 0551... Lectures in Clinical Medicine and Rehabilitation	4
Anatomy 0301... Histology	2
Anatomy 0320... Anatomy I	6
Anatomy 0324... Anatomy II	4
Occupational Therapy 0310... Clinical Psychiatry	4
Occupational Therapy 0311... Techniques and Procedures I	3
Occupational Therapy 0332... Therapeutic Exercise I	3
Occupational Therapy 0350... Rehabilitation Procedures I	3
Occupational Therapy 0405... Clinical Practice	9
Occupational Therapy 0506... Therapeutic Activities III	3
Occupational Therapy 0507... Therapeutic Activities IV	3
Occupational Therapy 0508... Therapeutic Activities V	3
Occupational Therapy 0515... Techniques and Procedures II	3
Occupational Therapy 0533... Therapeutic Exercise II	3
Occupational Therapy 0551... Rehabilitation Procedures II	3
Occupational Therapy 0555... Organization and Administration ..	3
Pathology 0500... Fundamentals of Pathology	2
Physiology 0322... Physiology	5

MASTER OF SCIENCE IN OCCUPATIONAL THERAPY

The Master of Science degree in Occupational Therapy offers professional and academic education for the registered occupational therapist in the newer evaluation and treatment techniques in special areas of practice, research, professional teaching, and work in administrative, supervisory or consultancy capacities.

Students in the Master of Science degree program in Occupational Therapy may complete requirements through Plan A — Thesis, or Plan B — Essay.

Through class work, seminars, research and field experience, graduate study will provide professional-academic knowledge and skills as the student pursues an area of special interest. Areas of specialization include geriatrics, mental retardation, prevocation, recreation, blind, prosthetics, orthoptics, activities of daily living, psychiatry, community health, and perceptual-motor dysfunction.

Professional field experience is required of all master's degree candidates. This is a meaningful supervised placement in an off campus institution as a practicum in the student's area of specialization.

Plan A

	<i>credits</i>
Required courses	8
Professional courses	12
Occupational Therapy electives	8
Other electives	8
Thesis research and direction	12

Plan B

	<i>credits</i>
Required courses	8
Professional courses	12
Occupational Therapy electives	8
Other electives	17
Essay research and direction	3

Required Courses

	<i>credits</i>
Theoretical and Behavioral Foundations 7663	4
Theoretical and Behavioral Foundations 7664	4
Occupational Therapy 0560	2
Occupational Therapy 0730	3
Occupational Therapy 0740	2
Occupational Therapy 0750	2
Occupational Therapy 0760	4
Occupational Therapy 0761	2-3



PHYSICAL THERAPY

Office: 1400 Chrysler Freeway, Detroit, Michigan 48207
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Associate Professor

Sara Jane Houtz, M.S., R.P.T.

Assistant Professors

Louis R. Amundsen, Ph.D., R.P.T., Gordon S. Cummings,
M.A.

Adjunct Instructors

Judith Blue, B.S., R.P.T., Charles Dorando, B.S., R.P.T.,
Helen Johnstone, B.S., R.P.T., Karen Sue Johnstone, B.A.,
R.P.T., Clair G. Thomas, B.S., R.P.T.

Part-Time Faculty

Mable Burns, M.A., R.P.T., Jack Front, B.S., M.B.A., R.P.T.,
Barbara Rubenstein, B.S., R.P.T., Beverly Schmoll, M.A.,
R.P.T., Chris Sepper, M.A., R.P.T.

Physical therapy is a profession which develops, coordinates and utilizes selected knowledge and skill in planning, organizing and directing programs for the care of individuals whose ability to physically function is impaired or threatened by disease or injury. Physical therapy focuses primarily on those individuals whose potential or actual impairment is related to the neuro-musculoskeletal, pulmonary, and cardiovascular systems; on methods of evaluating the functions of these systems; and on the selection of appropriate therapeutic procedures to prevent, maintain, improve, or restore these functions.

DEGREE PROGRAM

The program leading to the Bachelor of Science in Physical Therapy is offered by the College of Pharmacy and Allied Health Professions of Wayne State University in cooperation with the College of Liberal Arts.

It is recommended that students applying for admission to the preprofessional program in the College of Liberal Arts have the following high school courses: biology, chemistry, language, physics, geometry and intermediate algebra. All entering freshmen and transfer students may obtain the application forms for admission to the College of Liberal Arts from the Office of Admissions of the University.

Students who are enrolled in the College of Liberal Arts and who are interested in entering the professional program in physical therapy must apply for admission to the junior year by May 1. Contact the Department of Physical Therapy for information and the application forms. Students admitted to the professional program must have completed all prerequisite courses or the equivalent, have a 2.6 grade point average, be in good health and possess the personal qualifications necessary for the professional responsibilities of a physical therapist. A personal interview is recommended. The professional

program begins in the summer quarter of each year. The Senior Clinical Affiliation program extends into August.

The program of study in physical therapy is approved by the Council on Medical Education of the American Medical Association, in collaboration with the American Physical Therapy Association. Graduates of the program are eligible to take physical therapy licensure and registration examinations, and are eligible for active membership in the American Physical Therapy Association.

Preprofessional Program

Courses in the preprofessional program are taken under the direction of the College of Liberal Arts:

First and Second Years

<i>Electives</i>	<i>credits</i>
(Such as language, social science or natural science)	12
<i>English</i>	
English 0150	4
English elective	4
Speech 0200	4
<i>Humanities</i>	
Humanities electives	12
<i>Natural Sciences</i>	
Biology 0103, 0160, 0271	15
Chemistry 0107, 0108	8
Mathematics 0180	5
Physics 0213, 0214, 0215	12
Psychology 0198, 0330, 0340	12
<i>Social Sciences</i>	
Political Science 0101	4
Sociology 0201	4
Anthropology 0211	4
	100

Professional Program

Basic science courses in the professional program are taken under the direction of the Faculty of Allied Health Professions.

Third Year

	<i>credits</i>
Allied Health Programs 0340... Psychology of Disability	2
Allied Health Programs 0530... Muscle Function	4
Allied Health Programs 0550... Orientation to Clinical Medicine ..	4
Allied Health Programs 0551... Lectures in Clinical Medicine and Rehabilitation	4
Anatomy 0301... Histology	2
Anatomy 0320... Anatomy I	6
Anatomy 0324... Anatomy II	4
Pathology 0500... Fundamentals of Pathology	2
Physical Therapy 0332... Therapeutic Exercise I	4
Physical Therapy 0333... Therapeutic Exercise II	3

Physical Therapy 0350... Rehabilitation Procedures I	3
Physical Therapy 0355... Physiology Applied	3
Physical Therapy 0360... Physical Therapy Procedures I ..	2
Physical Therapy 0361... Physical Therapy Procedures II ..	3
Physical Therapy 0363... Physical Therapy Procedures IV ..	2
Physical Therapy 0371... Biomechanics	3
Physiology 0322... Physiology	5
	56

Fourth Year

	<i>credits</i>
Allied Health Programs 0350... Community Health	3
Physical Therapy 0351... Rehabilitation Procedures II	4
Physical Therapy 0362... Physical Therapy Procedures III ..	3
Physical Therapy 0400... Ethics and Administration	2
Physical Therapy 0401... Clinical Observation and Participation I	4
Physical Therapy 0404... Clinical Observation and Participation II	3
Physical Therapy 0405... Senior Clinical Affiliation	12
Physical Therapy 0470... Introduction to Research	2
	33

COURSES OF INSTRUCTION¹

Allied Health Programs (AHP)

0340. Psychology of Disability. Cr. 2.

Prereq. or coreq: AHP 0550, consent of adviser. Correlation of personality development with the psychological problems of the sick and disabled. Application of the principles of dynamic psychiatry to the patient-therapist relationship.

0350. Community Health. Cr. 2-3.

Prereq: introductory sociology course. Health care systems, organization and financing of health care services and resources available.

0530. Muscle Function. Cr. 4.

Prereq: AHP 0320, 0322, consent of adviser. Human motion and methods of evaluation.

†0550. Orientation to Clinical Medicine. Cr. 4.

Prereq: MT 0300, AHP 0320, 0322, consent of instructor. Survey of pathology, symptomatology, treatment of diseases or injuries in the following fields of medicine: general medicine, surgery, pediatrics, geriatrics, ophthalmology, otorhinolaryngology.

†0551. Lectures in Clinical Medicine and Rehabilitation. Cr. 4.

Prereq: AHP 0550. Continuation of Allied Health Programs 0550 in the following fields of medicine: physical medicine and rehabilitation, neurology and orthopedics.

Anatomy (ANA)

0301. Histology. Cr. 2.

Coreq: PTH 0500. Open only to students in Allied Health Programs. Brief presentation of cytology and histology.

0320. Anatomy I. (3,6). Cr. 6.

Open only to students in Allied Health Programs. Prereq: consent of adviser. Dissection and prosection; emphasis on neuromuscular system and functional correlation.

0324. Anatomy II. Cr. 4.

Prereq: ANA 0320, consent of adviser. Open only to students in Allied Health Programs. Anatomy of central, peripheral, and autonomic nervous systems. Physiology of motor and sensory pathways; physiopathology of motor and sensory syndromes.

0331. Human Anatomy and Physiology. Cr. 10.

Prereq: BIO 0103, elementary high school physics, chemistry or physical science elective. For physical education students. A basic anatomy and physiology course with detailed emphasis on the musculo-skeletal system.

Anesthesia (AN)

0300. Orientation. Cr. 0.

Prereq: BIO 0103, CHM 0104; Registered Nurse. Orientation to

anesthesia and related departments; general information about anesthesia as a profession.

0310. History of Anesthesia: Ethics, Legal Aspects and Administration. Cr. 2.

Prereq: consent of adviser. Organization and administration of an anesthesia department; ethical and professional conduct.

0340. Pharmacology of Anesthesia I. Cr. 3.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Introductory course to the pharmacology of anesthetic agents and drugs used in conjunction with these agents.

0350. Safety and Technical Problems of Anesthetic Procedures. Cr. 2.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Review of fundamental chemistry and physics including mathematics. Application of their principles in relation to anesthesia. The physical basis for explosions and their prevention.

0360. Principles of Clinical Anesthesia I. Cr. 6.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Principles and techniques for the use of an anesthetic machine, mechanical ventilators, electrocardiograph and electroencephalograph monitors, and all equipment pertaining to anesthesiology.

0361. Principles of Clinical Anesthesia II. Cr. 3.

Prereq: BIO 0103, CHM 0104, Registered Nurse; AN 0360 or consent of adviser. Preoperative evaluation of the patient for anesthesia and surgery. Various disease entities which may affect the choice and technique of anesthesia and common anesthetic complications.

0362. Principles of Clinical Anesthesia III. Cr. 2.

Prereq: AN 0361 or consent of adviser. Intricate techniques of anesthesia for pediatric, emergency, cardiovascular and neurological surgery.

0363. Respiratory Care. Cr. 3.

Prereq: AN 0360 or consent of adviser. Care of patients with respiratory deficiencies or abnormalities.

0370. Clinical Anesthesia Practicum I. Cr. 6-12 (Max. 48).

Credit only on completion of Anesthesia 0471. Prereq: consent of adviser. Supervised clinical training and experience in the administration of anesthesia in the operating room.

0371. Clinical Anesthesia Practicum II. Cr. 6-12 (Max. 48).

Credit only on completion of Anesthesia 0471. Prereq: consent of adviser. Continuation of Anesthesia 0370.

0372. Clinical Anesthesia Practicum III. Cr. 6-12 (Max. 48).

Credit only on completion of Anesthesia 0471. Prereq: consent of adviser. Continuation of Anesthesia 0371.

0420. Anatomy and Physiology for Anesthetists I. Cr. 5.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Systems and functions of the human as anesthetics are introduced into the body and alter the physiology. Respiratory, circulatory and excretory systems.

0421. Anatomy and Physiology for Anesthetists II. Cr. 5.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Continuation of Anesthesia 0420. Nervous and endocrine systems. Laboratory included.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0439. Anesthesia Seminar. Cr. 1-2 (Max. 8).

Prereq: consent of adviser. Survey of current practices and trends in the field of anesthesiology. Group discussion with student participation is encouraged.

0440. Pharmacology of Anesthesia II. Cr. 4.

Prereq: AN 0340 or consent of adviser. Drugs considered accessory to anesthesia, including autonomic agents, hypnosedatives and analeptics.

0441. Pharmacology of Anesthesia III. Cr. 3.

Prereq: consent of adviser. Biochemorhology, pharmacodynamics and biological disposition of inhalation, local and intravenous anesthetics.

0442. Pharmacology of Anesthesia IV. Cr. 3.

Prereq: consent of adviser. Continuation of Anesthesia 0441. Biochemorhology, pharmacodynamics and biological disposition of therapeutic agents which may alter the response of a patient to anesthesia.

0470. Clinical Anesthesia Practicum IV. Cr. 6-12 (Max. 48).

Credit only on completion of Anesthesia 0471. Prereq: BIO 0103, CHM 0104, Registered Nurse. Continuation of Anesthesia 0372. Actual administration of anesthetic agents to patients in the operating room under direct supervision.

0471. Clinical Anesthesia Practicum V. Cr. 6-12 (Max. 48).

Prereq: consent of adviser. Continuation of Anesthesia 0470. Further experience in the management of anesthesia.

Biochemistry (BCH)

0101. Introductory Biochemistry. Cr. 2.

Prereq: CHM 0101. Fundamentals of biochemistry, especially those areas of importance to students of occupational and physical therapy.

0301. General Biochemistry Lectures. (2,0). Cr. 2.

Prereq: quantitative analysis; organic chemistry; BIO 0271 or equiv. Credit only on completion of Biochemistry 0306. Principles of structure biochemistry, metabolism of nucleic acids and proteins emphasizing the mechanisms of biochemical homeostasis control and their role as a basis of human physiology and pathology.

0302. General Biochemistry Laboratory. Cr. 2.

Prereq: quantitative analysis; organic chemistry; BIO 0271 or equiv. Laboratory experience in the principles of quantitative technics of biochemical importance for undergraduate students in the ancillary medical sciences.

0303. General Biochemistry Lectures. Cr. 2.

Prereq: quantitative analysis; organic chemistry; BIO 0271 or equiv. Credit only on completion of Biochemistry 0305 and 0306. Chemistry and metabolism of lipids, carbohydrates, and amino acids; regulation of metabolism vitamins.

0304. General Biochemistry Laboratory. (0,3). Cr. 2.

Prereq: quantitative analysis; organic chemistry; BIO 0271 or equiv. Credit only on completion of Biochemistry 0305 and 0306. Glycolysis and incorporation of acetate into lipid, transamination, and carbon metabolism enzyme induction, metabolism of phosphate.

0305. General Biochemistry Lectures. (2,0). Cr. 2.

Prereq: BCH 0301 and 0303. Open only to students in medical technology program. Biochemical principles involved in homeostasis and control of metabolism.

0306. General Biochemistry Laboratory. (0,6). Cr. 2.

Prereq: BCH 0302 and 0304. Open only to students in medical technology program. Biochemical analysis of body fluids.

Full description of the courses listed below may be found in the School of Medicine section of this bulletin, page 419.

0701. General Biochemistry Lecture. Cr. 3.

0702. General Biochemistry Laboratory. Cr. 4.

0703. General Biochemistry Lecture. Cr. 3.

0704. General Biochemistry Laboratory. Cr. 4.

0756. Selected Topics in Biochemistry. Cr. 3.

0762. Biological Macromolecules. Cr. 3.

0763. Analytical Techniques. Cr. 4.

0764. Enzymology. Cr. 3.

0766. Bioenergetics. Cr. 3.

Medical Technology (MT)

0208. Medical Technology Seminar. Cr. 1.

Offered for S and U grades only. Introduction to medical technology; its opportunities and responsibilities.

0301. Introduction to Electronics. Cr. 2.

Prereq: junior standing in medical technology. An introduction to electricity and electronics beginning with fundamental laws and operation of circuit elements such as resistors, capacitors, vacuum tubes and transistors, and progressing to basic instrument component systems including power supplies, filter networks, amplifiers and readout devices. Principles of reading circuit diagrams and basic troubleshooting will also be discussed.

0302. Hematology I. Cr. 6.

Intensive study and practice of clinical laboratory evaluation of coagulation. Theory and practice of qualitative and quantitative procedures in the study of blood cells.

0304. Immunohematology. (2,6). Cr. 4.

Prereq: completion of medical technology preprofessional curriculum. Open only to juniors in medical technology professional curriculum. Intensive study and practice of diagnostic procedures in immunology and serology; theory, principles and practice of immunohematologic procedures and survey of the organization and operation of a blood bank.

0305. Hematology II. (2,6). Cr. 4.

Normal morphology of blood and blood forming organs; emphasis on study of blood from standpoint of diagnosis and prognosis.

0306. Clinical Methods. (2,3). Cr. 3.

Prereq: completion of medical technology preprofessional curriculum. Open only to juniors in medical technology professional curriculum. Theory and intensive practice of diagnostic analysis of blood and body fluids, aiming at versatility and competence by comparison of various analytical methods for each parameter tested.

0308. Radiological Physics for Medical Technologists. (10,0). Cr. 1.

Prereq: junior in medical technology. Principles of nuclear medicine, clinical instrumentation and principles of some diagnostic tests used in nuclear medicine.

0309. Medical Technology Professional Seminar. Cr. 1.
Weekly group discussion on medical technology matters.

0400, 0401, 0402, 0403. Medical Technology Laboratory. Cr. 40 on completion of all four courses.

Prereq: satisfactory completion of the third year Medical Technology Curriculum given at Wayne State University School of Medicine. Twelve months in an affiliated hospital laboratory during which the student receives training in hematology, chemistry, urinalysis, bacteriology, serology, parasitology, histology, tissue technique, basal metabolism, electrocardiography, and record keeping.

0404. Laboratory Administration and Teaching. (1,3). Cr. 2.

Prereq: completion of medical technology preprofessional curriculum. Open only to seniors in medical technology professional curriculum. Discussions of interaction with patients, fellow workers, employers and other allied health professions; professional responsibility of the medical technologist.

0405. Hematology III. (1,3). Cr. 2.

Prereq: senior standing in medical technology program. Pathologic morphology of blood and blood forming organs; emphasis on study of blood from standpoint of diagnosis and prognosis.

0507. Instrumentation. Cr. 3.

Introduction to the use of modern instrumentation employed in laboratories.

0706. Hematology. Cr. 4-6.

Prereq: M T 0301, 0305. Open only to medical technology graduates. Review of normal and emphasis on abnormal morphology of blood and blood-forming organs. Advanced training in coagulation and case studies of hematological disorders.

0707. Graduate Instrumentation. Cr. 4.

In-depth analysis and application of theories of operation, maintenance, and troubleshooting of analytical clinical laboratory instrumentation.

0709. Instruction in Teaching Techniques. Cr. 4.

Prereq: consent of adviser. Instruction in planning assignments, testing evaluation.

0790. Directed Study. Cr. 1-12.

Open only to students in medical technology graduate program. Instruction and laboratory work in areas relating to medical technology. Directed study with laboratory application in medical technology in areas related to hematology, administration, blood bank, microbiology and instrumentation.

0797. Medical Technology Seminar. Cr. 1 (Max. 3).

Credit only on completion of three assigned seminars. Prereq:

graduate student in medical technology program. Advanced methods in various areas pertaining to medical technology.

0798. Terminal Project. Cr. 1-16.

The student must make an original contribution to medical technology enlarging or improving the areas of administration or education. An original idea or research project will be presented by the student in a paper to be submitted for publication.

Microbiology (MIC)

0551. Bacteriology and Immunology. Cr. 6.

Prereq: BIO 0160, CHM 0227. Credit only on satisfactory completion of Microbiology 0552.

0552. Pathogenic Fungi and Parasites. (2,6). Cr. 4.

Prereq: MIC 0551. Fungi, viruses, and parasites in human infections.

0753. Special Topics in Microbiology. Cr. 1-5 (Max. 8).

Prereq: MIC 0551 or 0752.

0756. Descriptive Bacteriology. (2,0). Cr. 2.

Prereq: MIC 0752 or equiv.

0760. Immunology. (3,0). Cr. 3.

Prereq: MIC 0551 or 0752.

0780. Microbial Genetics. Cr. 3.

Prereq: BIO 0507 or consent of instructor; MIC 0551 or 0752. Brief review of Mendelian genetics, meiosis and mitosis. Mechanisms of genetic recombination in bacteria, bacteriophage and molds; the nature of mutation and selected aspects of cellular control mechanisms and DNA replication.

Occupational Therapy (O T)

0201. Survey of Occupational Therapy. Cr. 4.

Prereq: consent of instructor. History, development and survey of current uses in general medicine. Preclinical practice in organized occupational therapy departments.

0304. Therapeutic Activities I. Cr. 3.

Prereq: consent of adviser. Craft techniques. Adaptation of equipment and procedures.

0305. Therapeutic Activities II. Cr. 3.

Prereq: consent of adviser. Leadership techniques employed in the use of recreational activities as therapy.

0310. Clinical Psychiatry. Cr. 4.

Prereq: consent of adviser. Etiology and symptomatology of the major and minor psychoses; lectures with clinical demonstrations and therapies used.

0311. Techniques and Procedures I. Cr. 3.

Prereq: O T 0310. Application of occupational therapy in treatment of psychiatric patients.

0332. Therapeutic Exercise I. (2,2). Cr. 3.

Prereq: AHP 0530. Instruction and laboratory experience in the

techniques of therapeutic exercise in the area of physical dysfunction.

0350. Rehabilitation Procedures I. Cr. 3.

Prereq: AHP 0530, consent of adviser. Principles of evaluation and techniques used by the occupational therapist in the area of physical dysfunction: emphasis on activities of daily living, home-making, work simplification and amputee training.

0405. Clinical Practice. Cr. 9.

Prereq: consent of adviser.

0490. Directed Study. Cr. 2-4 (Max. 12).

Prereq: consent of adviser.

0506. Therapeutic Activities III. Cr. 3.

Prereq: AHP 0530, consent of adviser. Craft techniques; adaptations of equipment and procedures in the use of leather, metal, and ceramics as therapy.

0507. Therapeutic Activities IV. Cr. 3.

Prereq. or coreq: O T 0332, consent of adviser. Craft techniques; adaptations of equipment and procedures.

0508. Therapeutic Activities V. (0,6). Cr. 3.

Prereq. or coreq: O T 0332, consent of adviser. Craft techniques; adaptations of equipment and procedures.

0515. Techniques and Procedures II. (1,3). Cr. 3.

Prereq. or coreq: O T 0311, consent of adviser. Clinical experience with techniques and media of psychiatric occupational therapy.

0533. Therapeutic Exercise II. (1,3). Cr. 3.

Prereq: AHP 0530, consent of adviser. To provide a depth of theoretic and practical experience in specialized procedures used in the area of physical dysfunction.

0551. Rehabilitation Procedures II. Cr. 3.

Prereq: AHP 0530, consent of adviser. Principles of evaluation and techniques used by the occupational therapist in the area of physical dysfunction; emphasis on pre-vocational evaluation and assistive devices.

0555. Organization and Administration. Cr. 3.

Prereq: consent of adviser. Principles of organization and administration of occupational therapy departments.

0560. Introductory Seminar in Occupational Therapy. Cr. 2-3.

Prereq: consent of adviser. Introduction to seminar methods in an overall approach to research in occupational therapy.

0730. Professional Literature. Cr. 3.

Prereq: consent of adviser. Analysis and appraisal of current occupational therapy and related professional literature.

0740. Seminar in Current Problems and Trends in Occupational Therapy. Cr. 2-4 (Max. 10).

Prereq: consent of adviser. Concepts and theories in specific areas of occupational therapy. Current developments, problems and research. Topics to be announced in Schedule of Classes.

0750. Specialist Roles in Occupational Therapy. Cr. 2-4 (Max. 10).

Prereq: consent of adviser. Philosophy, procedures, and skills of the occupational therapy specialist. Situations and problems encountered.

0760. Professional Field Experience. Cr. 4.

Prereq: 28 graduate credits and consent of adviser. Supervised placement in area of specialization.

0761. Terminal Seminar in Occupational Therapy. Cr. 2-3.

Prereq: O T 0560, consent of adviser. Refinement of research techniques in relation to effective development of selected study for master's thesis or essay.

0790. Directed Study. Cr. 2-4 (Max. 8).

Prereq: consent of adviser.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

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

Prereq: TBF 7663 and 7664 or equiv.; consent of adviser.

Pathology (PTH)

The course below may be found in the School of Medicine section of this bulletin, page 422.

0500. Fundamentals of Pathology. Cr. 2.

Physical Therapy (PT)

0090. Orientation to Physical Therapy. (1,0). Cr. 0.

Prereq: consent of adviser. Field trips to a variety of physical therapy departments; general information about physical therapy as a profession.

0332. Therapeutic Exercise I. (3,6). Cr. 4.

Prereq: consent of adviser. Theoretical aspects; principles and techniques of basic exercise; application to practice of physical therapy; laboratory practice.

0333. Therapeutic Exercise II. (2,4). Cr. 3.

Prereq: PT 0332. Continuation of Physical Therapy 0332. Emphasis on neurophysiological approach to exercise. Introduction of techniques for specialized problems.

0350. Rehabilitation Procedures I. (2,4). Cr. 3.

Prereq: consent of adviser. Basic principles and techniques of patient evaluation. Laboratory practice.

0351. Rehabilitation Procedures II. (3,6). Cr. 4.

Prereq: PT 0350. Theory and principles of treatment of patients who require orthotic or prosthetic devices; laboratory practice of treatment procedures.

0355. Physiology Applied. (2,4). Cr. 3.

Prereq: AHP 0322. Physiological principles related to disease and injury, and physical therapy procedures; laboratory observations and investigations.

0360. Physical Therapy Procedures I. (1,5). Cr. 2.

Prereq: consent of adviser. Principles and techniques of massage as a therapeutic agent.

0361. Physical Therapy Procedures II. (2,4). Cr. 3.

Prereq: consent of adviser. Principles and practice of low voltage currents in evaluation and treatment. Laboratory practice.

0362. Physical Therapy Procedures III. Cr. 4.

Prereq: consent of adviser. Theory and principles for therapeutic use of heat, cold, light and water; techniques of application.

0363. Physical Therapy Procedures IV. (2,3). Cr. 2.

Prereq: consent of adviser. Care of medical emergencies which arise in physical therapy departments; theory and practice of nursing procedure used by physical therapists.

0371. Biomechanics. (2,4). Cr. 3.

Prereq: PHY 0213, 0214, 0215, MAT 0180 and consent of adviser. Study of external and internal forces acting upon the human body.

0400. Ethics and Administration. (2,0). Cr. 2.

Prereq: consent of adviser. Organization and administration of a physical therapy department; ethical and professional conduct; inter- and intra-professional relationships.

0401. Clinical Observation and Participation I. (3,6). Cr. 4.

Prereq: consent of adviser. Orientation to clinical education and practice, observational skills; correlation of basic principles and skills of patient care and treatment. Supervised experience in clinical environment.

0404. Clinical Observation and Participation II. (1,8). Cr. 3.

Prereq: consent of adviser. Continuation of Physical Therapy 0401. Supervised experience in clinical environments. A case study and activity reports are required.

0405. Senior Clinical Affiliation. Cr. 12.

Prereq: consent of adviser. Offered for S and U grades only. Continuation of Physical Therapy 0404. Increased participation in clinical setting. Three clinical settings required.

0470. Introduction to Research. Cr. 2.

Prereq: consent of adviser. Techniques of scientific methodology; use of objective tools. Active participation in the design, experimental conduct, analysis of data, and presentation of the study.

Physiology (PSL)

0322. Physiology. (4,3). Cr. 5.

Prereq: consent of adviser. Emphasis on physiology of muscles, nerves, circulation, respiration.

0795. Research. Cr. 1-10 (Max. 10).

Prereq: consent of graduate adviser.



School of Social Work

SOCIAL WORK

Modern social work is concerned with the things that go wrong with society and its members. The social work profession is composed of people who want to tackle the major social problems of our industrial, urban society. It undertakes to repair breakdown in individuals, in groups and in communities. Its aim is to prevent societal and personal breakdown. Increasingly the profession is developing designs to enhance the functioning of society and its members.

The professional social worker uses the same basic principles whether he works with an individual, a group or a community. He is educated to assess the problem, to help plan and implement a solution, and to evaluate the results.

The social worker must be knowledgeable about the goals, policies, functions and activities of the over-all service system with its strengths and shortcomings for meeting the needs of individuals, groups and communities. The social worker must be knowledgeable about the kinds and amounts of resources available, both those within his client and those provided by society in social institutions and in the service system. He must also be knowledgeable about what may or may not be achievable for his client. Liking people, believing in the worth of human beings, and wanting to help them are qualities of heart and mind essential to the practice of social work.

Enhancement of human functioning requires that normal development needs be met by properly functioning social institutions and by those universally used services which comprise the "social utilities." More effective treatment and control of "social pathologies" also require changes in social institutions and in the service system. One major problem, racism, has long been ignored by society and the profession. Its impact on the lives and development of both non-white and white individuals, families and communities which are either integrated or separated has been neglected. Knowledge about racism and ways to combat it are essential to the profession of social work. In the present period of great and rapid social change, the social work profession is actively engaged in helping to create public social policies which will not only assure needed expansion and realistic distribution of services, but will also change social institutions in accordance with changed social conditions.

Social work has long been familiar with the fact that social change, even change which represents advance, can be injurious to many people when it occurs as a consequence of uncontrolled social forces. Today the profession is seeking to harness the energy of social change in a deliberate, humane way. It is developing a conceptual framework for planning change in social institutions. Plans must be designed which articulate societal goals, and the policies and programs required to achieve them. The urgency of this task makes social planning one of the most exciting challenges of the social work profession.

Urban University Setting

The metropolitan area of Detroit provides an exceptionally rich and fascinating laboratory for the teaching, learning, and

practicing of social work. Highly industrialized urban areas are close enough to suburban, semi-rural, and rural areas to enable the student to be aware of the total fabric of American community life. Social agencies and organizations operating in the Detroit area have to do with the usual kinds of social problems but must inevitably deal also with social problems affected by nationality, by racial and minority groups, by management-labor relationships, and by other social forces inherent in this kind of community. These agencies provide opportunities for an almost unlimited variety of experiences for the social work student.

The School of Social Work, as an integral part of a large university, is able to draw heavily upon the total offerings of the University for the enrichment of its own curriculum. The variety of University resources makes it possible for the School of Social Work to offer considerable flexibility in curricula and in a wide range of emphases in professional education for social work.

Individual attention to each student is emphasized by the School and by its faculty. Through this individualization the complexities of the community and of the University become an asset to learning and professional growth.

LIBRARY FACILITIES

Students in the School of Social Work have access to books and other materials in the University Libraries and to the extensive Social Service collection at the Detroit Public Library which adjoins the University campus.

STUDENT ORGANIZATION

The Student Organization is a unique and dynamic factor in the total program of the School of Social Work. It is involved in dealing with issues within the School as well as broader educational and social issues. The Student Organization is committed to a policy of advocacy against client dehumanization. Through the Organization students become involved in the policy-making and curriculum planning for the School. The Student Organization offers opportunities for students to work toward a more responsive social work education which will enable them as social workers to serve the needs of clients and communities. A student newspaper, weekly student lunches, other social and recreational activities, assistance in attendance at relevant conferences and participation in the National Federation of Student Social Workers are some of the ways in which the Student Organization puts students in touch with each other and with student activities.

ASSOCIATION OF BLACK SOCIAL WORK STUDENTS (ABSWS)

The Association of Black Social Work Students (ABSWS) is the Wayne State University School of Social Work Chapter of the National Association of Black Social Work Students.

The ABSWS involves itself in a number of educational, research and community services activities on a year round basis. ABSWS assists Black students in making the adjustment to the School of Social Work and provides students with supportive educational services.

ABSWS works closely with the Detroit Chapter of the National Association of Black Social Workers (ABSW) in sponsoring forums, luncheons, conventions and fund raising events as well as a schedule of social and leisure time activities.

TRABAJADORES DE LA RAZA ESTUDIANTILE (T.R.E.)

T.R.E. is the organization of Latino social work students at the School of Social Work. The objectives of T.R.E. are to increase the number of Latino students and faculty in the School, to integrate the Latino experience into the School's policy and academic settings, to link community social work needs with School resources, and to provide a Latino student forum for coordination with the University community.

T.R.E. is the student component of Trabajadores de la Raza (T.R.). The Detroit T.R. chapter has assisted the School T.R.E. group's formation as has the national T.R. organization. In working with the School, social work professional groups, the Latino community and concerned agencies T.R.E. is maintaining an active participation in the development of social work roles for Latinos in the years to come.

ORGANIZATION

The Organization continues and strengthens School professional identification. It keeps graduates informed about one another and about the School of Social Work through its newsletters, carries on promotional and interpretative activities, encourages professional development by sponsoring forums, institutes and workshops, conducts special activities to support the work of the School, and promotes fellowship among its members through its social programs.

ACADEMIC REGULATIONS

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the School of Social Work.

Students in the School of Social Work are responsible for informing themselves of all rules, regulations, and requirements, complying with all official procedures, and fulfilling all course and degree requirements in proper sequence with satisfactory scholarship. In case of doubt regarding any matter the student should consult the adviser. The primary responsibility rests with the student.

The faculty of the School of Social Work has the responsibility to require a student to withdraw at any time prior to receipt of the degree when, in its judgment, the student fails to do satisfactory work. Such decisions may be based on deficiencies in class or field performance or in personal fitness for the profession.

Every effort is made to assist the student whose work suffers as a result of conditions beyond his control such as personal

illness, serious illness in the immediate family or similar emergencies.

MAXIMUM HOURS

A student devoting full time to study in the School of Social Work should plan a program in consultation with the adviser, limiting it within a framework of required courses and electives in order to maintain a standard of scholarly attainment and academic excellence at the graduate level.

The student who is engaged in part-time work should limit registration in proportion to the amount of outside work after consultation with the student's adviser.

ATTENDANCE

Students are expected to attend all sessions of courses for which they are registered and to notify the instructor or his secretary prior to the class session, if possible, when the student may be absent due to illness or similar emergency.

ADMISSION

Each application for admission to the School of Social Work for the program leading to the Bachelor of Social Work degree or the Master of Social Work degree is given careful review in order to select those students best able to fulfill the requirements for professional education in social work. The responsibility for deciding whether a student shall or shall not be admitted rests with the School.

STUDENT AID

Scholarships, fellowships and other forms of financial aid are available on a limited basis for those students who cannot undertake full-time study without some financial assistance. The School expects the student to utilize his own resources as much as possible to cover the cost of his professional education. Financial aid through School resources should be considered as supplementary.

Applications for student aid are evaluated by the University Office of Scholarships and Financial Aids based on financial need as reflected in the information provided by the student and/or his family on the appropriate forms. All requests for applications should be sent to the Coordinator of Financial Aids and Placements at the School of Social Work.

When financial aid is necessary, the School of Social Work will cooperate with the University Office of Scholarships and Financial Aids to develop the best possible student aid plan from the various scholarships, stipends, grants, or loans available.¹ Such financial assistance will not be assigned or awarded until the student has confirmed his intention to enroll after being notified of admission.

¹ For additional information see page 30.

PROGRAMS

The School of Social Work offers opportunity for study at the undergraduate and the graduate level to prepare students for practice in the profession of social work. Its principal programs lead to the Bachelor of Social Work degree and the Master of Social Work degree. Individual courses are also available at the freshman and sophomore level and post-degree courses are available to those who have been awarded the B.S.W. and the M.S.W. degree. The School conducts special institutes and workshops for persons working in the field of social welfare.

The undergraduate program leading to the Bachelor of Social Work degree is approved by the Council on Social Work Education, the authorized accrediting body for social work education. The Council is inaugurating accreditation of undergraduate programs this year. The graduate program leading to the Master of Social Work degree is fully accredited.

BACHELOR OF SOCIAL WORK

The program of study which leads to the Bachelor of Social Work degree, now in its first year of operation, consists of six quarters of study at the junior and senior years. During each year about one-half of the curriculum is in professional courses in social work and about one-half is in corequisite courses and electives. One part of the professional component of the program is field work which is concurrent with class work. It is required that the student enroll in the entire professional component during any one quarter. It is the School's strong conviction that the integration of class work and field work is essential to development of professional competence in the practice of social work.

Students in the undergraduate program have field experience in many of the same agencies in which graduate students are placed. Some of these agencies participate in Learning Centers organized by the School around selected areas of social concern. Currently, Learning Centers in community mental health, family functioning, health care, inner-city neighborhood services, rights of children and youth, and social work in school systems have offerings for students especially interested in these social problem areas.

Usually the six quarter program of class and field work is a program of full-time study extending over two successive academic years, beginning in the fall quarter. The number of students admitted to the program is limited.

ADMISSION

Applications for admission to the program may be submitted after the student has completed sixty quarter credit hours of work or its equivalent at the freshman and sophomore levels. Applications for admission to the program leading to the Bachelor of Social Work degree must be submitted to the Office of Admissions, Wayne State University, Detroit, Michigan 48202. Students who have already attended Wayne State University should apply directly to the School of Social Work.

Applications are reviewed only when all supporting materials have been received and are then processed up to the enrollment capacity of the program. Deadline for submission of initial applications for September admission is May 31. Applications received after the closing date cannot be guaranteed processing, nor can applications for September admission be guaranteed processing if all supporting material is not received by June 30.

Each applicant to the professional program leading to the Bachelor of Social Work degree must meet the following requirements: (1) complete and forward to the Office of Admissions, Wayne State University, the form *Application for Undergraduate Admission*; note: students who have already attended Wayne State University omit this step and forward directly to the Office of Admissions, School of Social Work, the completed form, *Admission to the School of Social Work, Supplementary Information Form*; (2) complete and forward to the Office of Admissions, Wayne State University, the form *Admission to the School of Social Work, Supplementary Information Form*; (3) submit transcripts and other evidence that the student will at the time of his admission to the program have successfully completed a minimum of ninety quarter credit hours of work or its equivalent distributed as outlined below from a college or university of recognized standing; (4) have earned a minimum overall grade point average of 2.6; (5) show evidence of suitability for the professional ability to undertake successfully undergraduate education in social work.



The ninety credits of work or its equivalent at the freshman and sophomore levels must be distributed according to one of the following patterns. These patterns are exemplified by the College of Liberal Arts and Monteith College and are designated Pattern A and Pattern B respectively.

Pattern A

Social Sciences: 24 credits

- Philosophy — 4 credits
- Anthropology — 4 credits
- Economics — 4 credits
- Sociology — 4 credits
- Political Science — 4 credits, including PS 0101 or 0103 or 0401 and 0402
- Elective — 4 credits

Natural Science: 19 credits

- Biology — 3 credits
- Psychology — 12 credits
- 4 credits to be selected from the following: Physical Science 0191, 0192, 0193; chemistry; geology; astronomy; physics; mathematics above Mathematics 0179

Humanities: 8 credits

- Selected courses from the following:*
- humanities; classics; art and art history; literature in a foreign language department; american studies

English: 8 credits

- Freshman Composition — 4 credits
- English Literature — 4 credits
- A student who "places out" of freshman English must elect higher level courses in English.*

THE FOLLOWING SELECTIONS APPLY TO BOTH PATTERNS

Electives: 19 to 27 credits

The student may select appropriate courses from any discipline in the College of Liberal Arts and in Monteith College divisional or interdivisional courses and from such professional schools as the College of Education, the School of Social Work, the School of Business Administration and the College of Nursing.

Elementary Statistics: 4 credits

All students are required to have successfully completed a course in elementary statistics. Statistics courses may be selected from such departments as the following: statistics, economics, sociology, psychology, mathematics.

CURRICULA

The curriculum leading to the Bachelor of Social Work degree includes two major elements. Out of these is drawn speci-

Pattern B

Science of Society: 21 credits

- Science of Society 0131, 0132, 0133, 0231, 0232

Natural Science: 36 credits

- Natural Science 0121, 0122, 0123, 0221, 0222, 0223
- Psychology — 12 credits

Humanistic Studies: 8 credits

- Humanistic Studies 0231, 0331

Monteith Practicum I, II: 2 credits

- Freshman Seminar 0190, 0191

cally from professional subject matter in social work. The other element is of a general education nature drawn from related academic and professional disciplines.

The professional component of the curriculum is designed to interrelate practice and knowledge in the areas of social work methods, human behavior and the social environment, social welfare organization and policy, and research so that the student develops a holistic view. In the field work course the student may confront single individuals, individuals in families, groups, organizations and communities under stress. In other professional courses the student learns about the nature of stress and its effect upon individuals in the social environment and various approaches to reduction of stress and ways to help people enhance their skills in problem-solving. Some of these courses deal with social welfare policies and programs to prevent breakdown and to deal with dysfunction. In research courses the student takes a critical look at the methodology and results of research and their applications to practice.

Concurrent with the professional component the student enrolls in corequisite courses and electives to enhance the student's general education and knowledge of related professional disciplines.

Required Curriculum — Junior Year

Professional Content —

First Quarter

	<i>credits</i>
S W 0301..... Social Work Practice Method I	2
S W 0311..... Human Development and Dysfunction I	2
S W 0489..... Field Practice in Social Work	3
	7

Second Quarter

S W 0302..... Social Work Practice Method II	2
S W 0312..... Human Development and Dysfunction II	2
S W 0332..... Social Welfare in the United States — Basic Concepts	2
S W 0489..... Field Practice in Social Work	3
	9

Third Quarter

S W 0303..... Social Work Practice Method III	2
S W 0333..... Social Welfare in the United States — Current Programs	2
S W 0340..... Research Methods for Social Workers	2
S W 0489..... Field Practice in Social Work	3
	9

Required Curriculum — Senior Year

Professional Content —

First Quarter

	<i>credits</i>
S W 0401..... Social Work Practice Method IV	2
S W 0411..... Social Functioning and the Effect of Stress.....	2
S W 0489..... Field Practice in Social Work	6
	10

Second Quarter

S W 0402.....Social Work Practice Method V	2
S W 0440.....Seminar in Research for Social Workers	1
S W 0489.....Field Practice in Social Work	6
	<hr/>
	9

Third Quarter

S W 0403.....Social Work Practice Method VI	2
S W 0433.....The Social Work Profession	2
S W 0489.....Field Practice in Social Work	6
	<hr/>
	10

Corequisites and Electives — Junior and Senior Years

Corequisites —

The corequisites for the program leading to the Bachelor of Social Work degree during the junior and senior years must be distributed according to one of the following patterns of general education. These patterns are exemplified by the College of Liberal Arts and Monteith College and are designated Pattern A and Pattern B respectively.

Pattern A

Sociology: 4 credits

At least one of the courses listed below:

- Sociology 0460—Social Psychology
- Sociology 0511—Public Opinion and Political Process
- Sociology 0514—Social Stratification
- Sociology 0571—Collective Behavior
- Sociology 0580—Population and Modern Society

Anthropology: 8 credits

The following are recommended:

- Anthropology 0531—Language and Culture
- Anthropology 0536—Culture and Personality

Political Science: 4 credits

The following is recommended:

- Political Science 0513—The Legislative Process

Psychology: 8 credits

The following are recommended:

- Psychology 0430—Abnormal Psychology
- Psychology 0628—Psychoanalytic Theory

Electives —

Students in consultation with their advisers elect from four to twelve or more credits from other courses offered in the School and elsewhere in the University.

DEGREE REQUIREMENTS

The Bachelor of Social Work degree requires satisfactory completion of a minimum of one hundred eighty credits. These comprise ninety credits in the freshman and sophomore years including prerequisite courses for admission to the professional component of the program and ninety credits in the junior and senior years including fifty-four credits in the professional component in field work and related courses and a minimum of thirty-six credits in corequisite and elective courses.

Each student must pass the English Proficiency Examination in Composition by the end of the junior year as a requirement for going into the senior year and subsequently for graduation.

The student must achieve an overall grade point average of 2.6 for graduation.

Application for the degree must be filed no later than the last day of the registration period for the quarter in which the student expects to complete the requirements for the degree. The applicant must be recommended for the degree by the faculty. The applicant is requested and expected to attend the commencement at which the Bachelor of Social Work degree is conferred.

MASTER OF SOCIAL WORK

The program of study which leads to the Master of Social Work degree consists of six quarters of full-time study in which field work is integrated and concurrent with class work. Students spend three days a week in the field and two days in classes.

Usually the six quarter program of class and field work extends over two successive academic years, beginning in the fall quarter. In recent years a limited number of students have been admitted in January to the full-time program leading to the degree of Master of Social Work, beginning in the winter quarter and continuing without interruption for six consecutive quarters. This is an elapsed time of eighteen months as compared with twenty-two months for the regular program of two academic years. January admission leads to graduation in June of the following year. The admission of a class of students in January is determined on a year-to-year basis.

A maximum of twenty-four graduate credits from curricula closely related to social work may be accepted toward the Master of Social Work degree if, in the judgment of the faculty, these credits are the equivalent of elective courses in the social work curriculum. Arrangements for enrollment in such courses may be made after the student has been admitted to the School of Social Work.

ADMISSION

Applications for admission for full-time study to the program leading to the Master of Social Work degree may be submitted as early as a year in advance of the term in which the

student wishes to enter the School. All applications for admission to the program leading to the Master of Social Work degree must be submitted to the Director of Admissions, School of Social Work, Wayne State University, Detroit, Michigan 48202.

Applications are reviewed only when all supporting materials have been received and are then processed up to the enrollment capacity of the program. Deadline for submission of initial applications to the full-time program for September admission is March 31; for January admission it is August 31. Applications received after those dates cannot be guaranteed processing, nor can applications for September admission be guaranteed processing if all the supporting material is not received by April 30; application for January admission cannot be guaranteed processing if all the supporting material is not received by September 30. Over the past several years the School has been unable to accommodate all qualified applicants in its full-time program leading to the Master of Social Work degree.

Each applicant to the program leading to the Master of Social Work degree must meet the following requirements: (1) hold a baccalaureate degree from a college or university of recognized standing; (2) submit directly from the college or university official transcripts of all credits previously earned, whether in one or several educational institutions; (3) complete the form, *Application for Admission to the School of Social Work*; (4) have completed forty-five quarter credits (or thirty semester credits) of academic work well distributed in the social and biological sciences and in the humanities; and (5) show evidence of suitability for the profession and the ability to undertake successfully graduate professional education.

Advance Tuition Deposit

When an applicant has been offered admission to the full-time program leading to the Master of Social Work degree, the student must send an acceptance in writing within two weeks, together with a \$50 advance tuition deposit. The advance deposit will hold a place in the incoming class and will be applied to tuition fees for full-time registration. If the student does not enroll in the full-time program, which includes field work, the \$50 deposit is non-refundable after July 31 for September admission, and after October 31 for January admission.

ADVANCED STANDING

The responsibility for deciding whether the holder of a B.S.W. degree shall or shall not be admitted to the graduate program rests with the School. Admission of B.S.W. graduates to the M.S.W. program is not automatic. Students who are admitted are granted advanced standing and begin in the fourth quarter of the six quarters of the program leading to the Master of Social Work degree. Currently such advanced standing may be given only to students who have received the Bachelor of Social Work degree at Wayne State University.

PART-TIME STUDY

Students may enroll in certain classes on a part-time basis and will be permitted to accumulate a maximum of eighteen credits. If the student applies later for admission as a full-time student credits so earned may be applied toward the degree, but will not reduce the requirement of six quarters of integrated full-time study. Faculty are available to advise part-time students on programs of study during the early and final registration periods each quarter.

Admission to Part-Time Study

Applicants for part-time study must hold a baccalaureate degree from a college or university of recognized standing and must submit an Application for Admission to the School of Social Work. Transcripts of all credits previously earned, whether in one or several educational institutions, must be received by the School at least two weeks prior to the first day of final registration for the quarter in which the student wishes to enroll as a pre-masters student.

DEGREE PROGRAMS

In the program leading to the Master of Social Work degree the School offers a variety of curricula focused on social work practice with individuals, families, groups and communities. The following descriptive statements include the required curriculum in each of the sequences. Students in consultation with their advisers also build their programs from other courses offered in the School and elsewhere in the University.

SOCIAL CASEWORK

Social casework is a method of intervention which aims to provide service and to effect positive change when stress creates an imbalance between individual internal needs and external demands. Such imbalance may be reflected in personal and social dysfunction and maladaptive behavior, conflicts in the family, and difficulties in meeting the requirements of society and social institutions. Casework is a remedial, habilitative and rehabilitative activity which attempts to correct the imbalance in order to free, develop or enhance the individual's or family's capacity to perform essential life tasks. When such imbalance is corrected it is assumed that energy is released for coping with life's tasks. Growth is encouraged for meeting new tasks as they arise in the life cycle.

Social casework, like all of social work, is based on knowledge about the biological, social, cultural and psychological functioning of individuals, the dynamics underlying their development, their social interaction and their social realities. It requires a deliberate process of study, exploration, and assessment leading to a plan of action. This includes the use of a range of techniques such as interviewing skills, therapeutic relationship, social resources, and selection of appropriate interventive actions.

Students in the social casework sequence may have field work in any of the fields of social work practice, e.g., in child

welfare, corrections, family welfare, medical, mental health, public welfare, public health, rehabilitation or school settings.

Required Curriculum—Social Casework

<i>First Quarter</i>		<i>Second Quarter</i>	
	<i>credits</i>		<i>credits</i>
Social Casework I	2	Social Casework II	2
Behavioral Base of Social Functioning	2	Environmental Base of Social Functioning	2
Social Welfare Organization in the United States	2	Social Welfare Organization and Policy Elective	2
Field Work for Social Workers	8	Field Work for Social Workers	8
	<hr/> 14		<hr/> 14
 <i>Third Quarter</i>		 <i>Fourth Quarter</i>	
Social Casework III	2	Social Casework IV	2
An Overview of Psychopathology	2	¹ Concept of Social Functioning	2
Social Welfare Organization and Policy Elective	2	² Administration of Social Agencies I	2
Research Methods in Social Work	2	³ Research Seminar	2
Field Work for Social Workers	8	Field Work for Social Workers	8
	<hr/> 16		<hr/> 16
 <i>Fifth Quarter</i>		 <i>Sixth Quarter</i>	
Social Casework V	2	Social Work 0844 or 0845 or 0846 or 0847 or 0848 or 0849 or 0850 or 0851	2
³ Research Seminar	2	Social Welfare Organization and Policy Seminar	2
Field Work for Social Workers	8	Field Work for Social Workers	8
	<hr/> 12		<hr/> 12

SOCIAL GROUP WORK

Social group work is that method of social work practice in which group experience is utilized by the social worker as the primary medium for effecting social functioning, individual growth and environmental change. The group work student learns to use the knowledge, values, purpose and skill common to all social work practice and in addition acquires special knowledge regarding group properties and processes, theory about helping processes in the group context and the use of program media to facilitate purposeful interaction.

Social group work practice is geared to meet the need for rehabilitation, prevention, socialization and environmental change services to individuals and groups of all ages. These services are not mutually exclusive. Rehabilitation services are designed to assist individuals who are currently unable to perform effectively their assigned and desired societal roles. This is illustrated in group work practice with the mentally ill. Preventive services are designed for individuals confronted by unusual stresses which make them more susceptible to

- ¹ Students may elect this course during the fourth, fifth or sixth quarter.
² Students may elect this course during the fourth or fifth quarter.
³ Students may elect a group project or individual thesis in lieu of the Research Seminar.

personal breakdown and deviant behavior. Such services are illustrated in group work practice with aged persons. Socialization services are designed to assist individuals to achieve their fullest potentials in a complex and changing world. Group work practice with adolescents who are seeking to identify who they are and where they are headed is illustrative of these socialization services.

Environmental change is designed for individuals and groups to help them develop competence in solving their community and social problems as illustrated by self-help and neighborhood development groups. All four services are not mutually exclusive. The social group worker may also work with individuals, families and organizations depending on particular service needs. The social group worker's helping activities take the form of interaction or relationship with members and the group, the facilitation of interpersonal relationships among members and the promotion of group action toward socially desirable goals.

Social group workers are employed in all fields of practice and all types of settings. Opportunities for field instruction currently include settlements and community centers, schools, psychiatric hospitals, residential treatment centers, child guidance clinics, children's institutions, agencies serving the aged, and youth-serving agencies. Students have opportunity for collaborative work with social workers practicing case work and community work, as well as with other helping professions, and the possibility of practice in one of the other social work methods.

Required Curriculum—Social Group Work

<i>First Quarter</i>		<i>Second Quarter</i>	
	<i>credits</i>		<i>credits</i>
Social Group Work I	3	Social Group Work II	3
Behavioral Base of Social Functioning	2	Environmental Base of Social Functioning	2
Social Welfare Organization in the United States	2	Social Welfare Organization and Policy Elective	2
Field Work for Social Workers	8	Field Work for Social Workers	8
	<hr/> 15		<hr/> 15
 <i>Third Quarter</i>		 <i>Fourth Quarter</i>	
Social Group Work III	3	Social Group Work IV	2
An Overview of Psychopathology	2	¹ Concept of Social Functioning	2
Social Welfare Organization and Policy Elective	2	² Administration of Social Agencies I	2
Research Methods in Social Work	2	³ Research Seminar	2
Field Work for Social Workers	8	Field Work for Social Workers	8
	<hr/> 17		<hr/> 16
 <i>Fifth Quarter</i>		 <i>Sixth Quarter</i>	
Social Group Work V	2	Social Group Work VI	2
³ Research Seminar	2	Social Welfare Organization and Policy Seminar	2
Field Work for Social Workers	8	Field Work for Social Workers	8
	<hr/> 12		<hr/> 12

COMMUNITY SOCIAL WORK

The School of Social Work offers a two-year full-time curriculum in social planning, community organization, community development, and social policy development called the community social work sequence.

This curriculum for professional education of social workers provides practice roles in areas such as urban social planning, housing and community development, comprehensive community health and comprehensive community mental health planning and program development, public and private sector coordination and planning for the aged, juvenile justice, political internships, youth movements, labor unions and minority (black and brown) community development.

The thrust of the program is directed toward intervention at several levels of community life: neighborhood, city, county, metropolis, state, region and national. The purpose of the curriculum is to teach practitioners a knowledge and skill base to affect and effect social change on a broad scale. Social work through its philosophy, methodologies and processes promotes the means by which all segments of human society can participate in community problem solving.

The curriculum is multi-disciplinary in nature. Building on the core of social work practice — including values, sanctions, objectives, knowledge and skills — requirements focus on providing students with a broad range of social science concepts. Ideas and knowledge are utilized from sociology, political science, economics, psychology, and anthropology. Courses are offered in the School of Social Work and in the related social science departments. Students are also expected to become familiar with related professions focusing on such community problems as city and regional planning, medical care and public health planning, and public administration. Elective courses are available.

Special field work placements are developed according to the unique interests of individual students. These placements often pioneer new opportunities in settings that may have never utilized social work professionals.

Required Curriculum — Community Social Work

<i>First Quarter</i>		<i>Second Quarter</i>	
	<i>credits</i>		<i>credits</i>
Community Social Work I . . .	3	Community Social Work II . . .	3
Behavioral Base of Social Functioning	2	Environmental Base of Social Functioning	2
Social Welfare Organization in the United States	2	Social Welfare Organization and Policy Elective	2
Field Work for Social Workers	8	Field Work for Social Workers	8
	<hr/> 15		<hr/> 15

¹ Students may elect this course during the fourth, fifth or sixth quarter.

² Students may elect this course during the fourth or fifth quarter.

³ Students may elect a group project or individual thesis in lieu of the Research Seminar.

Third Quarter

Community Social Work III . . .	3
Social Welfare Organization and Policy Elective	2
Human Behavior and the Social Environment Elective	2
Research Methods in Social Work	2
Field Work for Social Workers	8
	<hr/> 17

Fifth Quarter

Community Social Work V . . .	3
³ Research Seminar	2
Field Work for Social Workers	8
	<hr/> 13

Fourth Quarter

Community Social Work IV . . .	3
¹ Concept of Social Functioning	2
² Administration of Social Agencies I	2
³ Research Seminar	2
Field Work for Social Workers	8
	<hr/> 17

Sixth Quarter

Community Social Work VI . . .	3
Social Welfare Organization and Policy Seminar	2
Field Work for Social Workers	8
	<hr/> 13

SOCIAL WORK PRACTICE

The social work practice curriculum offers a sequence of three courses in method and related laboratory and field work experiences to prepare students in the application of a variety of intervention procedures. It is designed to provide the social work student in the first year of his graduate education with the basic foundation for effective social work practice in line with newly emerging practice demands and responsibilities. At the end of the first year the student makes a choice of a specific method for his second year of graduate education.

The educational emphasis is on problem-focused social work practice. The student is helped to define a social problem and its impact on individuals, families, social institutions, neighborhoods and communities, and to determine the most appropriate intervention techniques to bring about necessary social change in these systems. With such a problem-focus the social worker is enabled to engage both in direct service to clients and social change-oriented activity. It is expected that the student will become a broadly based practitioner who, by his choice of one of the methods (social casework, social group work or community social work) in the second year, will also acquire specialized knowledge and skill in one particular method.

The curriculum emphasizes all of the elements basic to social work practice: the value framework; the major concepts, principles and skills involved in observation, communication, relationship, interviewing and the group process; the problem-solving process in relation to the social entities with which social workers interact, such as families, individuals, neighborhoods, social institutions and communities; and the selection and implementation of a variety of social work intervention approaches including advocacy and crisis intervention. The student is enrolled in the supporting knowledge courses required of all first-year students in the areas of human behavior and the social environment, social welfare organization and policy, and research.

The educational process of social work practice students takes place in learning centers providing opportunities for social

work practice with individuals, families, organizations, neighborhoods and the larger community in relation to a wide range of problems and issues, such as education, health services, rights of children and youth, drug abuse, corrections, community mental health, and family dysfunction. One example of a field work assignment in a learning unit is the work of social work practice students related to problems of young people involved with drug abuse, consisting of individual and group counseling, counseling with family members, and developing half-way house programs. This work also includes participating in development of policy and procedures regarding the working relationships between the helping professions and law enforcement agencies; it takes into consideration societal sanctions and expectations of law-enforcement, basic rights of patients to treatment without jeopardy to themselves, and professional ethics. Assignments of a similar nature are offered in field placements in a variety of other major problem areas.

Required Curriculum — Social Work Practice

<i>First Quarter</i>		<i>Second Quarter</i>	
	<i>credits</i>		<i>credits</i>
Social Work Practice I	2	Social Work Practice II	2
Behavioral Base of Social Functioning	2	Environmental Base of Social Functioning	2
Social Welfare Organization in the United States	2	Social Welfare Organization and Policy Elective	2
Field Work for Social Workers	8	Field Work for Social Workers	8
	<hr/> 14		<hr/> 14

<i>Third Quarter</i>		<i>Second Year</i>	
Social Work Practice III	2	<i>(Fourth, Fifth and Sixth Quarters)</i>	
Overview of Psychopathology	2	<i>Enroll in methods sequence of choice and follow second year curriculum for the se- quence.</i>	
Social Welfare Organization and Policy Elective	2		
Research Methods in Social Work	2		
Field Work for Social Workers	8		
	<hr/> 16		

DEGREE REQUIREMENTS

The Master of Social Work degree requires satisfactory completion of a minimum of ninety credits at the graduate level, including forty-eight credits of field work, four credits in the research seminar or six credits in a group project or nine credits of individual thesis, and forty to fifty credits in other academic courses, depending on the sequence elected. The total usually will include more than the minimum of ninety credits.

Up to one-half of this requirement may have been completed in another approved school of social work. The transfer student must be in good standing in the school from which he transfers, must meet all other requirements of this School and earn a minimum of forty-five credits.

Holders of the Bachelor of Social Work degree who are admitted to advanced standing in the program leading to the Master of Social Work degree must complete a minimum of forty-five credits at the graduate level, including twenty-four credits of field work, four credits in the research seminar or six credits in a group project or nine credits of individual thesis, and a minimum of twelve to seventeen credits in other courses, depending on the sequence elected.

To be awarded a Master of Social Work degree, the student must achieve an overall grade point average of 3.0. A final oral examination is required of each student with C or lower grades which are not balanced with A grades. An oral examination may be required of any student at the discretion of the faculty.

Application for the degree must be filed no later than on the last day of the registration period for the quarter in which the student expects to complete the requirements for his degree. The applicant must be recommended for the degree by the faculty. The applicant is requested and expected to attend the commencement at which the Master of Social Work degree is conferred.

All requirements for the Master of Social Work degree must be fulfilled within nine years from the time of admission to the program of study.

COURSES OF INSTRUCTION¹ (S W)

0101. Introduction to Social Work. Cr. 4.

Introduction to the fields and methods of social work.

0201. Development of Social Welfare in the United States. Cr. 4.

Prereq: sophomore standing. History and development; comparison with welfare programs in other industrialized nations.

0301. Social Work Practice Method I. Cr. 2.

Coreq: S W 0489. First of six courses designed to provide foundation of knowledge and skills for first level of professional social work practice; social work values, principles of observation, interpersonal relationships and communications.

0302. Social Work Practice Method II. Cr. 2.

Prereq: S W 0301; coreq: S W 0489. Continuation of six-course sequence begun in Social Work 0301. Worker-client interactions as influenced by environmental systems.

0303. Social Work Practice Method III. Cr. 2.

Prereq: S W 0302; coreq: S W 0489. Continuation of six-course sequence begun in Social Work 0301. Assessment in the problem-solving process.

0311. Human Development and Dysfunction I. Cr. 2.

Coreq: S W 0489. Open only to B.S.W. students. First of two courses on normal personality development, the socialization process and various psychopathological behavior. Life cycle in context of interaction of the individual in the environment.

0312. Human Development and Dysfunction II. Cr. 2.

Prereq: S W 0311; coreq: S W 0489. Open only to B.S.W. students. Continuation of Social Work 0311.

0332. Social Welfare in the United States: Basic Concepts. Cr. 2.

Open only to B.S.W. students. Development of social welfare in the United States.

0333. Social Welfare in the United States: Current Programs. Cr. 2.

Prereq: S W 0332. Open only to B.S.W. students. Description and analysis of major social welfare programs in the United States.

0340. Research Methods for Social Workers. Cr. 2.

Prereq: course in elementary statistics. Open only to B.S.W. students. Identification of problems within a social work frame of reference and their reformulation into researchable questions.

0401. Social Work Practice Method IV. Cr. 2.

Prereq: S W 0303; coreq: S W 0489. Continuation of six-course sequence begun in Social Work 0301. Holistic approach to problem-solving in social work practice.

0402. Social Work Practice Method V. Cr. 2.

Prereq: S W 0401; coreq: S W 0489. Continuation of six-course sequence begun in Social Work 0301. Range of interventions related to individuals, families, groups and organizations.

0403. Social Work Practice Method VI. Cr. 2.

Prereq: S W 0402; coreq: S W 0489. Continuation of six-course sequence begun in Social Work 0301. Range of interventions related to individuals, families, groups and organizations; termination and evaluation as part of the problem-solving process.

0411. Social Functioning and the Effect of Stress. Cr. 2.

Prereq: S W 0312; coreq: S W 0401. Problems faced by individuals and families as a result of internal and external stresses. Stresses found in normal development, disease, physical handicap, emotional problems, economics, cultural and occupational problems.

0433. Introduction to the Social Work Profession. Cr. 2.

Prereq: S W 0333. Open only to B.S.W. students. Description and analysis of the role and responsibilities of the social worker in professional practice.

0440. Seminar in Research for Social Workers. Cr. 1.

Prereq: S W 0340. Utilization of scientific knowledge for the improvement of social work practice.

0489. Field Practice in Social Work. Cr. 1-12 (Max. 35).

Minimum of 27 credits must be taken over not less than six quarters. The ratio of clock hours to credits is 27 to 1. Coreq: one course in social work method. Open only to junior and senior B.S.W. students. Practicum of B.S.W. professional component, integrated with courses in: social work methods, human behavior and the social environment, social welfare organization and policy, and research.

0490. Directed Study. Cr. 1-6 (Max. 6).

Prereq: consent of adviser and Dean. Individual direction in reading and research on selected topics.

0601. Child Welfare. Cr. 2.

Open to students with senior college standing and above. Historical, social and legislative aspects of child care. Private and tax-supported programs. Types of problems, philosophies of treatment, forms of care.

0602. Introduction to Law in Society I. Cr. 2.

Open to students with senior college standing and above. Introductory survey of the machinery of the law and how it works. Meaning of law, how the law grows, types and classifications of law, nature of the judicial process. Selected current constitutional problems and social legislation are used for illustrative purposes.

0603. Introduction to Law in Society II. Cr. 2.

Prereq: S W 0602. Continuation of Social Work 0602. Intensive analysis of legal problems of special interest to social workers such as mental derangement and criminal law, problems of the family, liability of welfare institutions and their employees, specialized testimony in court.

0604. Social Work Policy — Services for the Aged. Cr. 2-4.

Open to students with senior college standing and above. Identification, description and analysis of problems, programs, trends and issues related to the needs of the aged in our society.

0605. Social Work in School Settings. Cr. 2.

Open to students with senior college standing and above. Required for school social work approval in Michigan, and for all social work students in field work in a school setting. Orientation to social work in school settings. Development, organization and administration of school social work services; procedures in designing and delivering social work services with school personnel.

0706. Social Welfare Policy — Welfare Programs in Other Nations. Cr. 2.

Social welfare programs in selected foreign countries; typical problems, philosophy and values guiding policy; modes of organization; comparisons with the United States.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0707. (ECO 0584) Economics of Social Welfare. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Major economic hazards that face the individual in modern society: aging, unemployment, and physical or mental disability. Alternative and complementary public and private remedies and economic implications of security programs. Relevant foreign experience.

0713. (ECO 0541) Labor Problems I. Cr. 4.

Prereq: ECO 0101. Our changing labor force; development, structure and philosophy of United States unionism; collective bargaining; bargaining power and the role of the strike; substantive union-management issues; public labor policies.

0714. (ECO 0641) Labor Problems II. Cr. 4.

Prereq: ECO 0102. Continuation of Social Work 0713. Labor supply; causes and remedies for unemployment; labor mobility and the operation of labor markets; productivity and real wages; wage determination; human capital, income distribution, and economic development; poverty and its causes; economic impact of collective bargaining.

0715. Social Welfare Policy — Health Services. Cr. 2.

Current issues of organization and policy in the field of health.

0716. Social Welfare Policy — Services for Mental Health. Cr. 2.

Current issues of organization and policy in the field of mental health.

0718. (SOC 0580) Population and Modern Society. Cr. 4.

Prereq: ECO 0101, or SOC 0201, or SS 0191-0192, or consent of instructor. Economic and social significance of world population trends, changing composition of population, relation of population to labor supply, standard of living and markets, national policies affecting population.

0719. Social Welfare Policy — Income Maintenance Programs. Cr. 2.

Analysis of income maintenance programs in the United States—social insurance, public assistance, children's allowance, guaranteed annual income plans.

0720. Social Welfare Policy — Housing and Urban Development. Cr. 2.

Housing and associated problems of the central city; relation to social class and race; issues and dilemmas; social work involvement.

0721. Problems of Social Service Delivery in the Inner City. Cr. 2.

Theories, concepts and techniques affecting the delivery of social service to disadvantaged inner-city populations.

0722. Social Welfare Organization in the United States. Cr. 2.

Historical perspectives, goals in meeting human needs, program deficits, policy issues.

0726. (TBF 7471) Vocational Rehabilitation of the Handicapped. Cr. 4.

Prereq: consent of instructor. Organization, legislative provisions and rehabilitation procedures for physically and mentally handicapped adults. Consideration of causes, incidence and nature of various handicaps; diagnosis, treatment, education, training; placement and follow-up.

0727. (TBF 5743) Mental Hygiene of Childhood and Youth I: Understanding Behavior. Cr. 2.

Prereq: introductory course in psychology or child development or consent of adviser. Aspects of understanding children which are

directly relevant to the task of handling their behavior. Criteria for assessment of normality and health versus degree of disturbance, as far as can be read from behavior observation.

0728. (TBF 5744) Mental Hygiene of Childhood and Youth II: Management of Behavior. Cr. 2.

Prereq: introductory course in psychology or child development or consent of adviser. Practical approaches and implications for handling child behavior and managing groups. Techniques of behavioral intervention: dynamics and issues of punishment; selection of appropriate action techniques for individuals and groups.

0729. (TBF 7737) Seminar on Emotional Disturbances: Treatment and Behavioral Control. Cr. 3.

Prereq: consent of instructor. Utilization and understanding of group processes in development of personality; emphasis on processes relevant to emotional adjustment and the management of individuals requiring therapy.

0730. (TBF 5747) Mental Hygiene of Childhood and Youth III: Dynamics of Group Life. Cr. 2.

Prereq: introductory course in psychology or child development, or consent of adviser. The group as an organism; group structure and group atmosphere; group roles and leadership types; function of organization, routine, and discipline. The individual in the group; case-relevant behavior. Composition of groups; psychology of gang formation; problems of group disintegration; problem of contagion. Use of the group medium for recreational, educational and clinical goals; techniques of group leadership.

0731. The Behavioral Base of Social Functioning. Cr. 2.

Coreq: SW 0889. The human individual, the concept of personality, patterns of human maladjustment and social dysfunctioning.

0732. The Environmental Base of Social Functioning. Cr. 2.

Coreq: SW 0889. The environment of man; society, class, caste, status, role, major cultural institutions and social arrangements and their impact on human maladjustment and social dysfunctioning.

0733. The Concept of Social Functioning. Cr. 2.

Prereq: SW 0731 or 0732 or consent of instructor; coreq: SW 0889. Social functioning; "match" between the individual's coping capacities and his environment; use of the systems approach for assessing social functioning.

0734. Application of Behavioral Modification Theory to Interpersonal Helping. Cr. 2.

Prereq: consent of instructor. The general base of behavior modification theory with emphasis on the specific adaptability of the theory to social work practice.

0735. Social Work and Ethnicity. Cr. 2-4.

Prereq: consent of instructor. Ethnicity as it relates to psychosocial and interpersonal adjustment within and between ethnic clusters. The ability of societal institutions to accommodate ethnic grouping and their needs.

0736. The Adolescent Process: Issues for Profession of Social Work. Cr. 2.

Prereq: SW 0889 or consent of instructor. Examination of the theory of adolescent development as a base for discussion of problems in public policy, law and social work intervention.

0738. Family-focused Approach in Social Work. Cr. 2.

Prereq: consent of instructor. Orientation to family-focused social work principles; presentation of modes of social work intervention in situations of family dysfunction; theoretical foundations and use of students' own case material.

0740. Social Work Practice I. Cr. 2.

Coreq: SW 0889. The first of three courses on the problem-focused social work practice model. Course content will focus on basic social work principles and values, on organizational and systems analysis, and on observation and communication skills.

0741. Social Work Practice II. Cr. 2.

Prereq: SW 0740; coreq: SW 0889. The second of three courses on the problem-focused social work practice model. Problem solving process, utilization of small group process, group formation criteria, and a presentation of a variety of intervention procedures.

0742. Social Work Practice III. Cr. 2.

Prereq: SW 0741; coreq: SW 0889. The third of three courses on the problem-focused social work practice model. Variety of social work intervention procedures.

0743. The Social Worker as a Change Agent. Cr. 2-4.

Prereq: consent of instructor. Social work interventions within a problem-focused frame of reference. Guidelines for selecting effective intervention strategies, including individual, organizational, or community-directed change processes.

0744. Brief Service and Crisis Intervention. Cr. 2.

Prereq: consent of instructor. Short term intervention relevant to the current social scene. Theoretical underpinnings for planned brief intervention based on recent research including crisis theory formulation.

0745. (SOC 0400) Methods of Empirical Social Research. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Empirical methods of conducting social research; questionnaire construction; interviewing; sampling; experimental controls; interpretation of data.

0746. (SOC 0602) Social Statistics. Cr. 4.

Prereq: STA 0102 or equiv. Principles and problems involved in collecting, analyzing, and interpreting statistical data. Specific problems in sociology, applying correlation and measurement of significant differences.

0748. Research Methods in Social Work. Cr. 2.

Open only to full-time students in the School of Social Work or others by authorization of the Dean. Logic of scientific method and design of research, with emphasis on identification and formulation of researchable questions within a social work frame of reference.

0749. Client Advocacy in Interpersonal Helping. Cr. 2-4.

Coreq: SW 0889 or consent of instructor. Open only to full-time students in the School of Social Work. An analysis of the principle of client advocacy with the individual client or small group in the context of social work.

0754. Family Theory. Cr. 2-3.

Open only to full-time students in the School of Social Work. Family theory drawn from all the social and behavioral sciences as a background for learning family diagnosis and treatment in social work.

0755. Afro-American History and Culture. Cr. 2-4.

A perspective of the history and culture of the black man in Africa and his subsequent introduction into American culture and history.

0757. Health Problems. Cr. 2.

A problem approach to health needs and difficulties of individuals, families and communities.

0758. The Social Worker and the Inner City. Cr. 2.

Coreq: SW 0889 or consent of instructor. An analysis of disadvantageous patterns of social stratification in the inner city. Particular emphases placed on the changing roles of social workers and others who work among the disenfranchised.

0759. Behavior Management in Settings for Children. Cr. 2.

Coreq: SW 0889 or consent of instructor. An analysis of relevant theories for behavior management of children in life settings.

0760. Social Casework I. Cr. 2.

Coreq: SW 0889. Orientation to the value system, concepts and principles of social casework. Beginning understanding of the casework relationship and principles of interviewing; understanding the person in his situation, psychosocial study and diagnostic aspects of the casework process for purposes of formulating treatment goals and procedures.

0761. Social Casework II. Cr. 2.

Prereq: SW 0760; coreq: SW 0889. Practice theories of social casework, building on continued learning of diagnostic assessment; family-focused approach.

0762. Social Casework III. Cr. 2.

Prereq: SW 0761; coreq: SW 0889. Differential diagnosis and treatment with introduction to the range of treatment modalities in social casework relationship. Handling of the transfer and termination processes.

0763. Social Work Methods with Children I. Cr. 2.

Prereq: SW 0742 or 0762 or 0772 or 0782. Differential treatment of children and parents as related to problems of parent-child relationships, childhood emotional disorders, and difficulties in social functioning of children and adolescents.

0764. Social Work Methods with Children II. Cr. 2.

Prereq: SW 0742 or 0762 or 0772 or 0782. Treatment of children in foster home and institutional placement. Processes involved in intake, preparation for placement, foster home and adoption studies, supervision of foster homes. Criteria for placement and protective services.

0770. Social Group Work I. Cr. 2-3.

Coreq: SW 0889. Concepts, principles and overview of social work helping in the small group. Lecture, discussion and laboratory sessions on the professional tasks in the early phases of group service.

0771. Social Group Work II. Cr. 2-3.

Prereq: SW 0770; coreq: SW 0889. Individual and group assessment, differential service design, and worker activity as a function of social problem and setting.

0772. Social Group Work III. Cr. 3.

Prereq: SW 0771; coreq: SW 0889. Professional tasks in the later phases of group service; evaluation and termination.

0780. Community Social Work I. Cr. 3.

Coreq: SW 0889. Open only to full-time students in the community social work sequence or to others by authorization of the Dean. Beginning with activities and discussions dealing with participant-observation experiences as an introduction to community processes, this course provides the didactic emphasis of a "planned community change" theme. The first element focuses on the goals and objectives of planned community change from a philosophical and historical as well as a social science and social work perspective.

0781. Community Social Work II. Cr. 3.

Prereq: S W 0780; coreq: S W 0889. Continuation of Social Work 0780. Examination of community organization processes from the point of view of the dynamics of establishing relationship with community leaders and participants, formulation and operation of task-oriented groups, problems in group role dysfunction, and group goals.

0782. Community Social Work III. Cr. 3.

Prereq: S W 0781; coreq: 0889. Continuation of Social Work 0781. The relationship of group action to community change; the neighborhood as a group—its variation in the inner city and other settings. An examination of habitational units cross-culturally; relationship of political and social forces to development of neighborhood decision-making processes, particularly in impacted areas; role of social worker in assisting these processes. This course serves as the integration point of all first-year professional courses in the community social work sequence.

0783. Use of the Media in Social Work Practice. Cr. 2.

Open to all students in the School of Social Work or to others by consent of instructor. The functions of social workers in education, treating, organizing and training as it relates to their clients and their constituents, and the utilization of the various media to enhance the worker's knowledge and skill in the performance of the services needed.

0784. The Art and Science of Social Action. Cr. 2-4.

Specific cases of social change through action. Analyzing, assisting, and occasionally simulating cases of social struggle. Emphasis on strengthening the function of social workers.

0785. Socio-Cultural Dynamics in Community Intervention. Cr. 2 or 4.

Open only to community social work students admitted for full-time graduate work or to others by authorization of the Dean. An examination of urban social dynamics from the point of view of the interviewing practitioner. Subjects include the treatment of community institutions, deprived populations, culture and stratification as these are operationalized for purposes of interaction.

0786. Community Behavior and Organizational Behavior. Cr. 2-4.

Open only to community social work students admitted for full-time graduate work or to others by authorization of the Dean. An intensive study of the composition and actions of metropolitan communities and of the major organizations which constitute them, with stress on opportunities for, and resistance to the application of social work methods.

0787. Political Processes and Community Social Work Practice. Cr. 2-4.

Open only to full-time students in the community social work sequence or to others by authorization of the Dean. General characteristics of the American political system at national, state and local government levels insofar as political themes and variations affect the design and implementation of community social work practice.

0788. Systems and Organization in Crime and Delinquency. Cr. 2.

Open only to community social work students admitted for full-time graduate work or to others by authorization of the Dean. A survey of the extent of the problem of crime and delinquency, the court structure, and the organizational systems in adult and juvenile correction and rehabilitative services. Theories and recent legal opinions reviewed. Means of policy change developed, as well as possible "community systems" that will have impact on alleviating present problems.

0789. Community Control of Public Institutions. Cr. 2.

Problems and opportunities of black communities, other communities and service workers generally in developing community control of schools, agencies, hospitals, police and other services. Study of generic approaches to popular control of human resources.

0790. Directed Study. Cr. 2-6 (Max. 6).

Prereq: consent of adviser and authorization of the Dean. Individual direction in reading and research on selected topics.

0800. An Overview of Psychopathology. Cr. 2.

Prereq: consent of instructor. Placing the concept of psychopathology within an adjustment continuum; examining normal growth and development; examining the symptoms, dynamics and etiology of psychoneurosis, psychosis and personality disorders.

0801. Psychopathology I. Cr. 2.

Prereq: S W 0741 or 0761 or 0771 or 0781; coreq: S W 0889, and 0742 or 0762 or 0772 or 0782. Detailed presentation of the descriptive, dynamic, and economic aspects of neurotic conflict and of the more important psychoneuroses, personality disorders, and psychoses from the psychoanalytic point of view.

0802. Psychopathology II. Cr. 2.

Prereq: S W 0801; coreq: S W 0889. Continuation of Social Work 0801.

0803. Psychopathology III. Cr. 2.

Prereq: S W 0802; coreq: S W 0889. Continuation of Social Work 0802.

0804. Psychopathology in Children. Cr. 2.

Prereq: S W 0742 or 0762 or 0772 or 0782; coreq: S W 0889. Theory of neuroses and psychoses and personality and behavior deviation in children from the psychoanalytic point of view.

0805. Social Work and the Black Community: An Historical Perspective. Cr. 2.

Increased understanding of the wide variety of moods and trends within the black community with emphasis on the development of black education and religion. Improved social work intervention into and in behalf of the life situations of black individuals and social groupings through knowledge of their present status.

0806. Social Work and the Black Community: Advanced Workshop. Cr. 2.

Prereq: consent of instructor. A critical examination of the significant issues facing the black community and the role of social work in contributing to the resolutions of the problems. Students develop in-depth understanding of at least one aspect or factor impinging on the quality of black life.

0807. Advanced Workshop on Health Problems in Social Work Practice. Cr. 2.

Prereq: consent of instructor. Continuation of a problem approach to assessing health problems of individuals and families with particular attention to preventive aspects of treatment and rehabilitation.

0808. (NUR 0750) Health Care Organization. Cr. 2-12; public health nursing students, 12 required; others, 8 required.

American health care system; related social policy and political processes pertinent to organization, delivery, financing, and evaluation of services; in-depth analysis of one sub-system of health services.

0809. Drug Addiction in American Society. Cr. 2.

Coreq: SW 0889. Survey of the theoretical and methodological aspects of rehabilitation as applied to drug addiction. The etiology of drug addiction; effective social work service to the addict; major approaches to treatment.

0810. Social Casework IV. Cr. 2.

Prereq: SW 0762; coreq: SW 0889. Differential diagnosis and treatment in social casework with the family and its sub-systems such as the spouse (marriage counseling), parent-child and sibling sub-systems. Aging and intergenerational problems.

0811. Social Casework V. Cr. 2.

Prereq: SW 0810; coreq: SW 0889. Seminar: content of Social Work 0760, 0761, 0762, and 0810 applied to student's own case material.

0815. Developments in School Social Work Services. Cr. 2.

Open only to practicing school social workers. Prereq: consent of instructor. Specific analysis of current procedures and developments in school social work services; research materials and findings; experimental and recommended methods; evaluation.

0816. Seminar in School Social Work. Cr. 2.

Open only to first year school social work practitioners. Prereq: consent of instructor. Required for school social work approval in Michigan. Problem solving approach to assessing needs and establishing priorities in social work practice in school settings.

0819. Policy Trends and Issues — Social Work and the Schools. Cr. 2.

Role of the social work profession in relation to emerging patterns in the field of education; innovative designs in the delivery of social work services for the enhancement of the educational process; policy realities and issues affecting the social and emotional growth of children and youth.

0822. Social Group Work IV. Cr. 2.

Prereq: SW 0772; coreq: SW 0889. Review of basic concepts of group work practice; the group as a helping system, group development and intervention. Overview of a variety of approaches to conceptualizing group work practice; models and model building.

0823. Social Group Work V. Cr. 2.

Prereq: SW 0882; coreq: SW 0889. Group treatment; practice with children and adolescents; schools, correctional, mental health and residential settings; behavior modification in groups; supervision and staff education; practice with task groups.

0824. Social Group Work VI. Cr. 2.

Prereq: SW 0823; coreq: SW 0889. Crisis intervention; models and model building, planning and proposal writing; neighborhood development; self observation and peer supervision through videotaping; current practice trends.

0825. Social Group Work Treatment. Cr. 2.

Prereq: M.S.W. or consent of instructor. Current practice with group desirable. Theoretical base and techniques in the use of the group as a social work helping method.

0827. Structural Aspects of Administration of Social Agencies. Cr. 2.

Prereq: SW 0831 or M.S.W. degree or consent of Dean; consent of instructor. Examination of the social agency as a socio-technical system.

0828. Behavioral Aspects of the Administration of Social Agencies. Cr. 2.

Prereq: SW 0831 or M.S.W. degree or consent of Dean; consent of instructor. Behavioral dynamics of individuals and groups that underlie internal organizational life of the social agency.

0829. Planning and Control Systems in Administration of Social Agencies. Cr. 2.

Prereq: SW 0831 or M.S.W. degree or consent of Dean; consent of instructor. Systems, techniques and procedures for social agency planning, coordination and control.

0830. Seminar in International Community Development. Cr. 2.

Community development theory and practice in settings outside the United States. Identification of social work knowledge, practice, skills and problems in foreign arenas and the acceptable methods of intervention in problem solving.

0831. Administration of Social Agencies I. Cr. 2.

Prereq: SW 0742 or 0762 or 0772 or 0782 or consent of Dean. Components of the administrative structure and processes in social agencies.

0832. Administration of Social Agencies II. Cr. 2.

Prereq: consent of instructor. Seminar in administration of social agencies.

0834. Advanced Seminar: Behavioral Theory and Interpersonal Helping. Cr. 2.

Prereq: SW 0734 or consent of instructor. Behavioral modification techniques such as systematic desensitization, aversion therapy, social learning and imitation, verbal conditioning, and self-control. Client populations and settings which have been the "successful" targets of behavioral modification.

0837. Community Social Work Seminar. Cr. 2-4.

Prereq: consent of instructor.

0841. Community Social Work IV. Cr. 3.

Prereq: SW 0782; coreq: SW 0889. Planned community change processes in terms of the social worker's use of legal and social action tools. The legal framework is cited as the basis for practice, particularly as regards institutional change strategies. Socio-legal problem-solving techniques at the local, state and national levels.

0842. Community Social Work V. Cr. 3.

Prereq: SW 0841; coreq: SW 0889. The impact of planned community change in terms of the relationship between that change and individual human behavior; means for evaluating the impact of practice, utilizing field experiences as the major illustrative device.

0843. Community Social Work VI. Cr. 3.

Prereq: SW 0842; coreq: SW 0889. A seminar devoted to reviewing the conceptual and practice material of the preceding courses in community social work methods services in terms of an examination of gaps in current practice, knowledge and skills; critique of community social work practice.

0844. Behavioral Modification and Casework. Cr. 2.

Prereq: SW 0811; coreq: SW 0889. Applicability of behavior modification theory to the practice of social casework. The general base of behavior modification theory; adaptability of this approach for casework practitioners.

0845. Casework with Latency Age Children. Cr. 2.

Prereq: SW 0811; coreq: SW 0889. Communication skills with

children with use of play as a means of communication. The helping process when the child is seen at various settings. Diagnostic interviews with children analyzed and techniques of treatment processes explicated.

0846. Casework with Pre-School Children, Adolescents and Their Parents. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Social casework methods and techniques with normal and abnormal preschool children, adolescents and their parents. Family life education.

0847. Social Casework Methods in Clinical Mental Health Settings. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Social work methods with clients in mental health settings. Direct intervention techniques and use of support systems.

0848. Social Casework Methods in Family Treatment. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Family treatment in a variety of settings. Practice with utilization of a variety of models with consideration of the theoretical underpinnings. Differentials of family-focused approach, family diagnosis and treatment and family unit treatment.

0849. Social Casework Methods in Marriage Counseling. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Application of social casework concepts, principles and methods in marriage counseling. Review of practice theories and their application in the area of marital problem solving.

0850. Social Casework Methods in Health Settings. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. The function of the social caseworker in health and rehabilitation settings; emphasis on the social caseworker as a member of the interdisciplinary team; impact of casework on systems involved in the receipt and delivery of health care services.

0851. Short-Term Treatment in Social Casework. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Current research and application of crisis theory which indicates the effectiveness and durability of time-limited treatment, its effect on maximizing the worker-client relationship and the establishment of task-oriented treatment goals in various settings and with different target groups.

0852. Physical Aspects of Social Planning. Cr. 2 or 4.

Open only to full-time students in the community social work sequence or others by authorization of the Dean. The relationship of physical and social planning. Particular stress given to examining physical planning techniques in terms of their usefulness for carrying out social planning tasks.

0853. Economics of Social Welfare Planning. Cr. 2 or 4.

Open only to full-time students in the community social work sequence or others by authorization of the Dean. A review of the relationship between the development of social welfare programs and the economy at both national and local levels, economic aspects and impact of planned community change.

0855. Institutional Racism: Implications for Social Work. Cr. 2.

Racism and its impact on social work, social workers and the development of social welfare programs. History of modern racism, its character, development and effects upon social work practice.

0856. Social Psychological Dynamics in Community Intervention. Cr. 2 or 4.

Open only to full-time students in the community social work sequence or others by authorization of the Dean. An examination

of the conceptual basis for the interaction between individuals and their social environment. Stress on the relationship between behavior from a symbolic interactionist perspective and social work practice.

0857. Social Planning Design I. Cr. 2.

Credit only on satisfactory completion of Social Work 0858. Open only to full-time students in the community social work sequence or others by authorization of the Dean. A two-quarter course emphasizing the technology of social planning, utilizing actual problems encountered by social welfare organizations. The class functions as a consulting group and issues consultation reports based on its findings.

0858. Social Planning Design II. Cr. 2.

Prereq: S W 0857. Continuation of Social Work 0857, culminating in the writing and communicating of a report to a client organization.

0859. Social Planning Implementation. Cr. 2 or 4.

Open only to full-time students in the community social work sequence or others by authorization of the Dean. Identification and utilization of educational, social action, legal, political, economic and feedback tools in implementing plans for social problem solution at local, state and national levels.

0862. Methods of Field Instruction. Cr. 2.

Prereq: M.S.W., consent of instructor. Open only to current field instructors (for credit or audit). Basic principles of field instruction. Role and function of the field instructor as an educator. Coordination of field and classroom teaching. The evaluation process as a learning experience.

0863. Supervision in Social Work Seminar. Cr. 2.

Prereq: M.S.W. and supervisory practice. Principles and methods involved in providing progression in learning for beginning practitioners; evaluation, consultation, and administrative aspects of supervision. Discussion of conferences and selected readings.

0870. (P S 0563) Program Planning, Evaluation and Budgeting (I E 0565) (U P 0565). Cr. 4 (Max. 4 for Liberal Arts students; others max. 12).

Prereq: consent of instructor. Theory and practice of modern planning, evaluation, and budgeting, with specific applications to urban programs in education, health, housing, and police services.

0871. (I E 0747) Cybernetics of Urban Systems I. Cr. 4.

Prereq: consent of instructor. Economic, institutional, ecological, political and physical subsystems of the urban area. Ways in which these subsystems interrelate and can be made more responsive to human needs.

0872. (I E 0748) Cybernetics of Urban Systems II. Cr. 4.

Prereq: I E 0747. Multi-disciplinary structural analysis of urban systems through the methods and models of systems engineering, political science, economic geography, and management science. The issue of centralization and decentralization.

0873. (I E 0749) Cybernetics of Urban Systems III. Cr. 4.

Prereq: I E 0748. A multi-disciplinary assessment of the roles of knowledge, social values, and power in the conscious transformation of urban areas.

0878. Social Welfare Policy — Rights of Children and Youth. Cr. 2.

Coreq: S W 0889. In-depth study of a current issue in the definition and protection of the rights and needs of children and youth.

0879. Social Welfare Organization and Policy Seminar. Cr. 2.

Limited to sixth-quarter full-time students in the School of Social Work. Seminar in social welfare and social work policy. Factors affecting the decision-making process in various fields of social welfare and in practice and profession of social work.

0880. Field Problems in Social Welfare Policy. Cr. 2-4.

Prereq: S W 0722 or equiv.; coreq: S W 0889. Open only to students with field placement in learning centers. Study of social welfare issues in the field work setting.

0881. Seminar on Social Work and the Aging. Cr. 2.

No credit after S W 0604. Psychological, sociological and economic factors in the adaptation of the aging related to meaningful resources and the establishment of social work programs.

0882. Learning Problems: A Social Work Orientation. Cr. 2.

Coreq: S W 0889 or M.S.W. Work with the educationally impaired to identify and understand the nature of the impairment and the relationship and use of social work services in remediation.

0889. Field Work for Social Workers. Cr. 3-16 (Max. 60).

Coreq: a course in the social work methods sequence. Offered for S and U grades only. Registration limited to the resources of the School and to the number of placements available. Open only to graduate students who have been admitted to a sequence in the School of Social Work. Applications must be made well in advance of registration to insure placement. The ratio of clock hours to credits is 27 to 1. A minimum of 48 credits or 1296 clock hours is required for the degree of Master of Social Work. This work must be taken in not less than six quarters, the usual pattern being placement in two agencies for three quarters each.

0895. Research Seminar. Cr. 1-4 (4 required)

Open only to full-time students in the School of Social Work or others by authorization of the Dean. Methodological analysis and critique by students of selected social work research studies to sharpen research utilization skills.

0896. Group Project Research and Direction. (0,1-6). Cr. 1-6 (6 required).

Open only to full-time students in the School of Social Work or others by authorization of the Dean.

0898. Seminar in Advanced Social Case Work. Cr. 2-4.

Prereq: M.S.W. and experience in social case work and consent of instructor. Diagnostic and treatment processes. Case presentations by students. Transference phenomena and role performance; broader community and socio-cultural factors; psychotherapeutic aspects. Family focused and other treatment modalities.

0899. Master's Thesis Research and Direction. (0,3-9). Cr. 3-9 (9 required).

Open only to full-time students in the School of Social Work or others by authorization of the Dean.



Additional Academic Programs

Signs and Abbreviations

DEPARTMENT OF MORTUARY SCIENCE

Administrative Officers

William M. Borgman, Ph.D., Associate Dean of Administration

Walter D. Pool, M.D., Director

Gordon W. Rose, Ph.D., Associate Director

Faculty and Staff

Gerald Alvin, M.B.A., J.D., C.P.A., Professor of Accounting, School of Business Administration

Gerald Cavellier, Instructor in Embalming

C. Beaver Edwards, Instructor in Modeling

Edward G. Eriksen, M.A., Associate Professor Emeritus, Accounting, School of Business Administration

Robert Freiburger, Instructor in Restorative Art

E. Arthur McAsh, B.D., M.A., Ph.D., Instructor in Mortuary Psychology

David B. Meyer, Ph.D., Professor of Anatomy, School of Medicine

William Bennett Yort, B.A., Instructor in Mortuary Management

Mary L. Nebel, Ph.D., Professor of Chemistry, Detroit Institute of Technology

Wayne State University offers a professional program in funeral service education. In three years a student may earn a certificate in mortuary science in this program. In four years, including one summer session, he may earn both a certificate in mortuary science and a bachelor's degree from the School of Business Administration. The Departmental curriculum meets or exceeds the educational requirements of all states.

The services and facilities characteristic of a major university are available to students in this program. Laboratories are well equipped; faculty is selected from the staffs of the various departments of the University as well as from experienced practitioners in the community. There is an abundance of laboratory material available for training purposes. Direct departmental inquiries to: Department of Mortuary Science, 627 W. Alexandrine, Detroit, Michigan 48201; telephone 577-2050.

ADMISSION

Classes are admitted to the program in mortuary science in September of each year. Interested persons may secure application blanks from the University Admissions Office, 116 Administrative Services Building, Wayne State University, or from the Mortuary Science Department. Applications should be submitted to the Admissions Office well in advance of September registration.

FEES

Pre-Professional Program

The fees for the pre-professional program in the College of Liberal Arts are the general University fees, given on page 9.

Professional Program

Full-time students in the professional program pay a fee of \$377 each quarter if they are residents of Michigan. Students classified as non-residents pay a fee of \$499 per quarter. The fee for part-time students in the professional program varies with the number of credit hours elected, as follows:

Credit Hours	Resident	Non-Resident
1—4	\$175.00	\$247.00
5	200.25	278.50
6	225.50	310.00
7	250.75	341.50
8	276.00	373.00
9	301.25	404.50
10	326.50	436.00
11	351.75	467.50
12 and above	377.00	499.00

FINANCIAL AIDS

Students in the Department of Mortuary Science are eligible for scholarships and loans available to all University students. Any student interested should direct his inquiry to the University office of Scholarships and Financial Aids, 222 Administrative Services Building.

In addition, students enrolled in the third or professional year of the mortuary science program are eligible to apply for loans made available by the Michigan Mortuary Science Foundation. Inquiries should be directed to the Director of the Department of Mortuary Science.

VOCATIONAL GUIDANCE AND PLACEMENT

Men and women contemplating careers in mortuary science may take advantage of the Department's and University's counseling services. Every effort is made by the Department staff to acquaint the applicant with the vocational aspects of the profession. Students are assisted in securing part-time employment in funeral homes upon request.

Additional vocational information may be obtained from the following publications:

Funeral Service, A Heritage, A Challenge, A Future, National Funeral Directors Association, 135 W. Wells Street, Milwaukee, Wisconsin 53203.

Laws Relating to the Practice of Mortuary Science, Lansing, Michigan, Michigan State Board of Examiners in Mortuary Science, 1973.

Merrill, Charles D., *Mortuary Science*, Vocational and Professional Monograph No. 67, Boston, Mass., Bellman Publishing Co., Inc., 1946.

THREE-YEAR CERTIFICATE PROGRAM

The educational program in mortuary science covers three academic years of college work. Two of these years are devoted to pre-professional studies which must be taken in the College of Liberal Arts of Wayne State University or at any regionally accredited college or junior college. For the third or professional year, the student registers in the Department of Mortuary Science at Wayne State University.

The program of professional study is offered during the University's regular academic year, which extends from early September to the middle of June. On satisfactory completion of the full three-year program the student is awarded a Certificate of Graduation in Mortuary Science.

Objectives

The fundamental objectives of the program are:

1. To provide the student with basic pre-professional college training and experience aimed at the development of
 - a. an understanding of human behavior and the structure of social relationships,
 - b. skills in written and oral communication,
 - c. knowledge in the physical and biological sciences,
 - d. a knowledge of elementary mathematics and the application of this knowledge to business operations,
 - e. a sense of social, cultural, and moral values,
 - f. conversance with other careers and allied professions,
 - g. capabilities for study inquiry, and creative thought;
2. By a process of vocational counseling and selection, to bring into training personnel who are qualified to carry on work at the college level and who have the personal capabilities which will enable them to serve the profession effectively;
3. To provide a professional program of training in mortuary science which includes:
 - a. a study of the fundamentals of applied biological and physical sciences as background for understanding techniques and procedures applicable to the preparation and disposition of human bodies and to public health and safety measures;
 - b. a study of management, methods, and organization;
 - c. the development of an understanding of personal behavior, social institutions, religious faiths and customs, and legal practices as they particularly relate to funeral service,
 - d. the development of a thorough understanding of the theory of and a proficiency in the practice of the technical skills pertinent to funeral service.

ADMISSION REQUIREMENTS

Third (Professional) Year

Applicants are considered for admission to the third (or professional) year of the program if they meet the following conditions:

1. Completion of at least fifty-two semester or seventy-eight quarter credits at an accredited collegiate institution with a cumulative average of C or better, or
2. Completion of at least fifty-two semester or seventy-eight quarter credits at a recognized but unaccredited collegiate institution with a cumulative average of B or better, or
3. Completion of at least fifty-two semester or seventy-eight quarter credits and demonstration of a proficiency through a testing program as prescribed by the Office of Admissions of Wayne State University.
4. Completion of the following required pre-professional courses.

PRE-PROFESSIONAL PREPARATION

To be considered for admission to the professional year, applicants must have completed (as part of the required fifty-two semester or seventy-eight quarter credits) the courses listed below. These courses are included in the certification requirement of the Michigan State Board of Examiners in Mortuary Science as of July 13, 1962. All transferred courses must have been passed with a grade of C or better if taken at an accredited college or university, or with a grade of B or better if taken at a recognized but unaccredited institution.

	<i>credits</i>
English	8
General Inorganic Chemistry	8
(2 quarters or 2 semesters)	
Zoology or Biology	4
Social Science	8
Psychology	4
Mathematics or Accounting	4

GRADUATION REQUIREMENTS

While only seventy-eight quarter credits in pre-professional college work are required for admission to the Professional Program, ninety credits in pre-professional college work are required for graduation. Students who do not have the full ninety credits will not be granted the Certificate in Mortuary Science until after this deficiency is removed.

CERTIFICATE REQUIREMENTS

To receive a Certificate of Graduation in Mortuary Science, a student must have presented evidence of satisfactory completion of sixty semester or ninety quarter credits in pre-professional college work including the credits in courses required for admission (above), and he must have satisfactor-

ily completed fifty-one credits in professional mortuary science courses as described at the end of this section below.

A student who graduates from the Wayne State University program in mortuary science meets the academic requirements for licensure in Michigan and all other states.

The Department expects its graduates to satisfy the high ethical standards expected of those in professional funeral service.

MICHIGAN STATE LICENSURE

To become a licensed mortician in the State of Michigan one must:

1. Complete two academic years (60 semester hours) of instruction at any regionally accredited or recognized collegiate institution, with grades of C or better, and including required courses as determined by the State Board;
2. Graduate from a regionally approved program of mortuary science. Applicants for a Michigan license must register with the State Board of Mortuary Science before entering a mortuary science college. (After January 1, 1964, all Michigan students must graduate from a regionally accredited mortuary program);
3. Complete one year of resident training under the personal supervision of a licensed mortician. The Board may waive the requirement of one year of resident training if the applicant has an additional year of instruction in a program duly accredited beyond the three years prescribed. Special application must be made to the Board for waiver of resident training;
4. Pass examinations as determined by the State Board;
5. Be at least eighteen years of age, a resident of Michigan, a citizen of the United States, and of good moral character.

For further information, address: State Board of Mortuary Science, 1116 S. Washington, Lansing, Michigan 48926.

DEGREE PROGRAM

— with the School of Business Administration

Students who wish to receive a degree of Bachelor of Science in Business Administration in addition to the Certificate in Mortuary Science may do so by completing the requirements for that degree.

Eighty credits in specified liberal arts and business courses are required for admission to the School of Business Administration. Admission information and the pre-business administration course requirements will be found in the undergraduate programs section of the School of Business Administration. See pages 35-37 of this bulletin.

credits

Pre-Business Administration course requirements	80
Business Administration — Core Curriculum (See page 35)	48

Mortuary Science Electives

M S 0305..... Human Anatomy and Physiology	4
M S 0310..... Chemistry	5
M S 0325..... Microbiology	5
M S 0330..... Medical Science	2
M S 0331..... Medical Science	2
M S 0340..... Mortuary Law	4
M S 0380..... Mortuary Management	2
M S 0381..... Mortuary Management	2
M S 0382..... Mortuary Management	2
M S 0390..... Psychology of Funeral Service	2
M S 0391..... Psychology of Funeral Service	2
	<hr/>
	32

Other Electives

Electives to be taken in School of Business Administration	24
Non-Business Administration electives	8
	<hr/>
	32

Other Required Mortuary Science Courses

M S 0350..... Embalming I	3
M S 0351..... Embalming II	3
M S 0352..... Embalming III	3
	<hr/>
	9

Total credits required for degree 201

PROFESSIONAL COURSES OF INSTRUCTION¹ (M S)

The following courses in mortuary science are elected during the third year of the three-year program. With the exception of laboratory work in chemistry and microbiology, this work is given in the departmental building at 627 West Alexandrine.

First Quarter

0305. Human Anatomy and Physiology. Cr. 4.

Lectures and laboratory dissection of the human body; regional and systemic study of anatomy and physiology, study of vascular system, anatomical guides, and landmarks important to embalming.

0310. Chemistry. Cr. 5.

Review of inorganic chemistry and a survey of organic and biological chemistry. Lecture and laboratory.

0350. Embalming I. Cr. 3.

Theories, practices and techniques of sanitation and preservation related to the care of dead human bodies. Case analysis, anatomy of embalming, fluid analysis, particularly in adult and infant embalming. Uses of instruments and equipment as related to embalming. Lecture and laboratory.

0360. Restorative Art and Modeling. (1,3). Cr. 2.

Theories, methods, and techniques used in restorative art. Color theory, cosmetology, facial proportions, fundamentals of color in theory and use of water colors with the object of a deeper understanding of the various skin tones combined in human complexion; modeling of individual facial features in clay and wax; actual restorations performed on dead human remains. Lecture and laboratory.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0380. Mortuary Management. Cr. 2.

Problems involved in the practice of funeral management such as: the selection of site, personnel records and legal forms, funeral directing, merchandising, mortuary ethics, public relations, and association procedure.

0390. Psychology of Funeral Service. Cr. 2.

The role of the mortician; how he sees himself in relation to the bereaved; community acceptance of the mortician and funeral service practices. Active involvement of the mortician in social changes as they relate to death and dying.

Second Quarter

0330. Medical Science. Cr. 2.

A study of the general cause and nature of disease; specific diseases in relationship to mortuary science; autopsy procedure.

0340. Mortuary Law. Cr. 4.

Legal disposition of dead human remains; legal responsibilities of the mortician; common and statutory laws; state laws regarding funeral service establishments; interment and disinterment; cemeteries and transportation of the dead; probate law; ethical, moral, legal and professional responsibilities.

0351. Embalming II. Cr. 3.

Prereq: M S 0350. Continuation of Mortuary Science 0350.

0361. Restorative Art and Modeling. (1,3). Cr. 2.

Prereq: M S 0360. Continuation of Mortuary Science 0360.

0375. Mortuary Accounting. Cr. 4.

Basic accounting principles and practice with emphasis upon the development of systematic records for a funeral home; preparation and interpretation of financial statements.

0381. Mortuary Management. Cr. 2.

Prereq: M S 0380. Continuation of Mortuary Science 0380.

Third Quarter

0325. Microbiology. Cr. 5.

A study of pathogenic bacteria, fungi, rickettsia and viruses; disinfection, sterilization, and sanitation; immunity; epidemiology. Microscopy; staining technology; cultural and biochemical studies; media preparation; water bacteriology; evaluation of chemical disinfectants. Lecture and laboratory.

0331. Medical Science. Cr. 2.

Prereq: M S 0330. Continuation of Mortuary Science 0330.

0352. Embalming III. Cr. 3.

Prereq: M S 0351. Continuation of Mortuary Science 0351.

0362. Restorative Art and Modeling. (1,3). Cr. 2.

Prereq: M S 0361. Continuation of Mortuary Science 0361.

0382. Mortuary Management. Cr. 2.

Prereq: M S 0381. Continuation of Mortuary Science 0381.

0391. Psychology of Funeral Service. Cr. 2.

Prereq: M S 0390. Continuation of Mortuary Science 0390.

ROTC PROGRAMS

Military Science

Professor of Military Science: Lieutenant Colonel Felix L. Seldon

Commandant of Cadets: Major Robert L. Sheldon

Undergraduate Adviser: Captain Michael J. Mathews

The Department of Military Science provides Wayne State University students with an Officer Education Program through cross-enrollment agreements with the University of Detroit. The Officer Education Program allows qualified applicants to receive commissions as Second Lieutenants in the United States Army. Other interested students may select military science courses for elective credit without participating in leadership training or incurring any military obligation.

The Reserve Officers' Training Corps (ROTC) offers both a four-year and a two-year program. The four-year program consists of a two-year basic course, a two-year advanced course, and a six week summer camp normally attended between the junior and senior years. Students having prior ROTC including Junior ROTC or prior military service may be given placement credit for part or all of the basic course. The two-year program is by application only and consists of a six week basic course and the advanced summer camp. All students with two years of school remaining (graduate or undergraduate) are eligible, however, applications are only accepted during the second term for enrollment the following fall semester.

ROTC cadets are eligible for three, two and one year scholarships which pay tuition, textbooks, laboratory fees and other educational expenses. In addition, the advanced course students and all scholarship students receive a tax free subsistence allowance of \$100 per month during the school year. Books and uniforms are furnished at no cost to students. Cadets who maintain high academic and leadership standards and who are selected as Distinguished Military Students are eligible to apply for Regular Army Commissions. The ROTC Flight Training Program is also available to qualified advanced course cadets. This program, FAA approved, consists of thirty-five hours of ground training and thirty-six hours of flight instruction and leads to qualification for a private pilot's license.

COURSES OF INSTRUCTION¹ (MSC)

Basic Courses

Eligibility Requirements: Any physically fit male or female freshman or sophomore student who is a U.S. citizen may enroll. Enrollment consists of an academic course and a military arts laboratory period.

0101. Weapons Safety and Marksmanship. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Evolution of weapons, theory and functioning of modern weapons, and range safety and marksmanship. One hour weekly of demonstration and practical exercise.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

0102. National Security Structure. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Discussion of the United States Defense Establishment, the national defense program, and the role of the Army in the worldwide commitment of the national defense policy. One hour weekly of seminar and recitation.

0103. National Security Structure. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Continuation of Military Science 0102.

0201. American Military History. Cr. 2.

Prereq: admission to ROTC and consent of instructor. A directed reading course surveying the role of the United States Army in American military history.

0202. The Military in Society. Cr. 2.

Prereq: admission to ROTC and consent of instructor. Contemporary problems in the military and the role of the military officer in the larger society. Two hours weekly of seminars and discussions.

0203. The Military in Society. Cr. 2.

Prereq: admission to ROTC and consent of instructor. Continuation of Military Science 0202.

Advanced Courses

Eligibility Requirements: Any qualified male student with two years of undergraduate or graduate college remaining and a citizen of the United States may enroll after successfully completing the following:

- a. Questionnaire and interview.
- b. Physical examination.
- c. Satisfactory SAT or ACT scores.
- d. Successful completion of the Basic Course or Basic Summer Camp or more than one year of prior military active duty.

0301. Principles of Military Speaking. Cr. 1.

Prereq: admission to ROTC and consent of instructor. The military teaching technique and the military briefing. One hour weekly of lecture and practical exercise.

0302. Land Navigation. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Cartographic principles, map reading including study of aerial photography, and land navigational aids and techniques. One hour weekly of seminar and practical exercise.

0303. Military Leadership and Management. Cr. 2.

Prereq: admission to ROTC and consent of instructor. Principles and techniques of leadership and management; special problems of military leadership, planning, coordinating and decision making, and factors which affect human behavior. Two hours of seminar weekly.

0304. Conventional Land Warfare. Cr. 2.

Prereq: admission to ROTC and consent of instructor. Principles of command control and leadership techniques used in tactical employment of small units in a conventional role. Process of translating decisions into plans and combat orders. Two hours weekly of seminar and practical exercise.

0305. Land Navigation. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Continuation of Military Science 0302.

0306. Conventional Land Warfare. Cr. 2.

Prereq: admission to ROTC and consent of instructor. Continuation of Military Science 0304.

0401. Advanced Techniques of Employment in Conventional Special Operations. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Employment of platoon and company sized units in conventional operations and theory of United States Army doctrine for stability operations. One hour of seminar weekly.

0402. Advanced Leadership Seminar. Cr. 2.

Prereq: admission to ROTC and consent of instructor. Techniques, management tools and contemporary problems. Two hours weekly seminar.

0403. Military Justice. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Principles of military justice. Application of the Manual for Courts Martial and processes of courts martial. One hour weekly seminar.

0405. National Defense Strategies. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Defense strategies and military implications. One hour weekly seminar and discussion.

0406. Advanced Leadership Seminar. Cr. 2.

Prereq: admission to ROTC and consent of instructor. Continuation of Military Science 0402.

Aerospace Studies

The Air Force offers two and four-year programs to male and female students. Both programs lead to a commission as a Second Lieutenant in the United States Air Force.

A. To qualify for the two-year program, a student must:

1. Have two years of college remaining at either the undergraduate or graduate level.
2. Be a citizen of the United States and at least seventeen years of age.
3. Pilot or Navigator applicants may not be over twenty-six and one-half years old at the time of their commissioning. Non-flying applicants may not be over thirty years old at the time of commissioning.
4. Pass the Air Force Officer Qualifying Test and Air Force Physical Examination.
5. Be accepted for the program by the Professor of Aerospace Studies.
6. Successfully complete a six-week summer field training encampment.

Students interested in the two-year program should make application early in their sophomore year to allow sufficient time for processing actions.

The two-year program offers financial considerations to members amounting to approximately \$1,000 per year, plus uniforms and ROTC books. Qualified pilot candidates are given flight instruction at a local airport through a civilian contractor.

Two-year students in the pilot or navigator categories are eligible to compete for full tuition scholarships after the summer camp evaluation has been completed.

B. To qualify for the four-year program, a student must:

1. Successfully complete the General Military Course or:
 - a) Be a Veteran with 180 days of active duty in enlisted or warrant officer status.
 - b) Have completed a four-year high school level ROTC course at a military school.
 - c) Have completed two years training in the Senior Division of Army or Navy ROTC.
 - d) Have completed two years training at a service academy.
2. Meet the requirements of items 2, 3, 4, and 5 of the two-year program listed above.
3. Successfully complete a four-week summer field training encampment in the summer between the sophomore and junior year.

Full tuition scholarships are available for two or three years to members of the four-year program. In addition, four-year cadets receive \$100 per month during their third and fourth years of AFROTC.

Students interested in the two or four-year program should contact the Professor of Aerospace Studies, University of Detroit, Detroit, Michigan 48221, telephone 862-9478.

COURSES OF INSTRUCTION¹ (ASC)

General Military Course (four-year program only)

0101. U.S. Military Forces in the Contemporary World I. Cr. 1.
Prereq: consent of Professor of Aerospace Studies. Role of the United States Air Force related to national defense policy, general and limited war alliances and to strategies and policies of the U.S. with other national powers.

0102. U.S. Military Forces in the Contemporary World II. Cr. 1.
Prereq: consent of Professor of Aerospace Studies. Introduction to U.S. defense organization and decision making processes, and their contribution to national objectives.

0103. U.S. Military Forces in the Contemporary World III. Cr. 1.
Prereq: consent of Professor of Aerospace Studies. Continuation of Aerospace Studies 0102.

0201. Growth and Development of Aerospace Power. Cr. 1.
Prereq: consent of Professor of Aerospace Studies. Air Force technological and doctrinal developments from 1900 to 1940.

0202. A Quarter Century of Air Power I. Cr. 1.
Prereq: consent of Professor of Aerospace Studies. Survey of noted historians who evaluate the developments of the Air Force in light of the international developments of the time.

0203. A Quarter Century of Air Power II. Cr. 1.
Prereq: consent of Professor of Aerospace Studies. Continuation of Aerospace Studies 0202.

Professional Officer Course (two- and four-year programs)

0301. National Security Forces in Contemporary American Society I. Cr. 3.

Prereq: consent of Professor of Aerospace Studies. The civil military relations and the environmental context in which U. S. defense policy is formulated and effected.

0302. National Security Forces in Contemporary American Society II. Cr. 3.

Prereq: consent of Professor of Aerospace Studies. The political, social, and economic constraints on the national defense structure, and the impact of technological and international developments on strategic preparedness and the overall policy making process.

0303. National Security Forces in Contemporary American Society III. Cr. 3.

Prereq: consent of Professor of Aerospace Studies. Continuation of Aerospace Studies 0302.

0401. The Professional Officer I. Cr. 3.

Prereq: consent of Professor of Aerospace Studies. Professionalism, professional responsibilities and ethics, human relations, and the military justice system. Pilot Candidates receive thirty-six and one-half hours of light airplane flying. Three hours weekly of seminar discussion and group problem solving.

0402. The Professional Officer II. Cr. 3.

Prereq: consent of Professor of Aerospace Studies. Leadership, management principles, functions, and practices; management tools and controls, creative thinking and briefing for commissioned service. Pilot Candidates receive thirty-six and one-half hours of light airplane flying. Three hours weekly of seminar discussion and group centered activity.

0403. The Professional Officer III. Cr. 3.

Prereq: consent of Professor of Aerospace Studies. Continuation of Aerospace Studies 0402.

¹ See page 536 for interpretation of numbering system, signs and abbreviations.

SIGNS AND ABBREVIATIONS

SUBJECT AREA CODES

The following abbreviations of departments and subject areas are used in prerequisites to courses and in curricular information:

School of Business Administration

ACC — Accounting
FBE — Finance and Business Economics
GB — General Business
MGT — Management
MKT — Marketing

College of Education

ELD — Education Leadership Division
ITE — Interdisciplinary Teacher Education
LS — Library Science
TBF — Theoretical and Behavioral Foundations
TED — Teacher Education Division
VAE — Vocational and Applied Arts Education

College of Engineering

BE — Basic Engineering
CE — Civil Engineering
CET — Civil Engineering Technology
CHE — Chemical Engineering
EE — Electrical Engineering
EET — Electrical/Electronic Engineering Technology
ET — Engineering Technology
IE — Industrial Engineering
MCT — Mechanical Engineering Technology
MES — Mechanical Engineering Sciences
MET — Metallurgical Engineering
MIT — Manufacturing/Industrial Engineering Technology

Division of Health and Physical Education

DE — Driver Education
DNC — Dance
HE — Health Education
HEA — Health
PE — Physical Education
RP — Recreation and Parks Services

Law School

BL — Basic Law
GL — Graduate Law
SM — Seminars

College of Liberal Arts

AH — Art History
ANT — Anthropology
ARA — Aramaic
ARB — Arabic
ARM — Armenian
ART — Art
AS — American Studies
AST — Astronomy
BIO — Biology
CHI — Chinese

CHM — Chemistry
CLA — Classics
CRJ — Criminal Justice
CSC — Computer Science
DNC — Dance
ECO — Economics
ENG — English
FAC — Family and Consumer Resources
FRE — French
GEG — Geography
GEL — Geology
GER — German
GRK — Greek
HEB — Hebrew
HIS — History
HON — Honors
HUM — Humanities
ID — Interdisciplinary
IS — International Studies
ITA — Italian
JOU — Journalism
LAT — Latin
LIN — Linguistics
MAT — Mathematics
MED — Music Education
MUA — Applied Music — Classroom Instruction
MUH — Music History and Literature
MUP — Applied Music — Private Instruction
MUT — Music Theory
NE — Near Eastern Languages and Literatures
PHI — Philosophy
PHS — Physical Science
PHY — Physics
POL — Polish
POR — Portuguese
PS — Political Science
PSY — Psychology
RUS — Russian
SLA — Slavic
SOC — Sociology
SPA — Spanish
SPH — Speech
SS — Social Science
STA — Statistics
SWA — Swahili
UKR — Ukrainian
UP — Urban Planning

College of Lifelong Learning

HSS — Humanistic and Social Studies
VTS — Vocational and Technical Studies

School of Medicine

ANA — Anatomy
AUD — Audiology
BCH — Biochemistry
COM — Comparative Medicine
MIC — Immunology and Microbiology
OEH — Occupational and Environmental Health
PHC — Pharmacology (Medicine)
PSL — Physiology
PTH — Pathology
PYC — Psychiatry
RAD — Radiology

Monteith College

HS — Humanistic Studies
MON — Monteith Interdivisional

NS — Natural Science
 SCS — Science of Society
 SHS — Socio-Humanistic Studies

College of Nursing

NUR — Nursing

College of Pharmacy and Allied Health Professions

AHP — Allied Health Programs
 AN — Anesthesia
 ANA — Anatomy
 BCH — Biochemistry
 MIC — Immunology and Microbiology
 MT — Medical Technology
 OT — Occupational Therapy
 PA — Pharmaceutical Administration
 PC — Pharmaceutical Chemistry
 PCG — Pharmacognosy
 PCL — Pharmacology (Pharmacy)
 PHA — Pharmaceutics
 PHC — Pharmacology (Medicine)
 PT — Physical Therapy
 PSL — Physiology
 PTH — Pathology

School of Social Work

SW — Social Work

Other Subjects

ASC — Aerospace Studies (ROTC)
 MS — Department of Mortuary Science
 MSC — Military Science (ROTC)
 US — Urban Studies Co-Major Program

COURSE NUMBERING SYSTEMS

For the College of Education

0000-4999 Undergraduate credit only.
 5000-6999 Undergraduate or graduate credit.
 7000-8999 Open to graduate students exclusively.
 9000-9999 Open to doctoral students exclusively.

For all other Schools and Colleges

0000-0099 No degree credit; graded S and U.
School of Business Administration: Elementary courses auxiliary to the usual academic program.
College of Engineering: Orientation courses.

0100-0199 Primarily freshman courses; open to all undergraduates.

0200-0299 Primarily freshman and sophomore courses; open to all undergraduates who have completed course prerequisites.
College of Business Administration: Primarily junior college courses.
College of Engineering: Lower division courses; open to all undergraduates.

Monteith College: With consent of the instructor, a student may take a Monteith course numbered higher than one which a student in his class normally may be expected to take.

0300-0499 Junior and senior courses; undergraduate credit. (Ordinarily freshmen and sophomores will not be permitted to register for these courses.)

College of Engineering: Upper division courses.

Monteith College: Primarily courses for upper-classmen. With consent of the instructor, a student may take a Monteith course numbered higher than one which a student in his class normally may be expected to take.

0500-0699 Junior and senior courses; undergraduate and graduate credit.

0700-0899 Open to graduate students exclusively.

0900-0999 Open to doctoral students exclusively.

SYMBOLS AND ABBREVIATIONS

Used in Course Listings

F, W, Sp, Su in parenthesis following *College of Education* course description indicates the quarter in which the course will be offered.

The *College of Education* reserves the right to cancel a course offering in any quarter due to inadequate enrollment or other unforeseen circumstances.

* *College of Pharmacy:* An asterisk preceding the course number in the Courses of Instruction indicates required undergraduate courses.

† *A dagger* prefixed to the course number indicates that the course may be elected for minor or cognate credit, but may not count toward a graduate major in this department.

‡ *A double dagger* prefixed to a course indicates that the course may extend beyond one quarter. Credits are awarded only on completion of the entire course. Students should consult the *Schedule of Classes* for detailed information.

u *A letter u* prefixed to a course numbered 0500-0699 in the *Schedule of Classes* indicates the course may be elected *only* for undergraduate credit.

(—,—) The first number in parenthesis following a course title indicates the number of clock hours per week assigned to lecture and/or recitation; the second number indicates the number of clock hours per week assigned to laboratory, field work, practicum.

Cr. (credit) The amount of credit for each course is indicated by the number or numbers following the abbreviation.



Max. (maximum) Course may be re-elected to the maximum credit indicated.

Prereq: (prerequisite) Course must be preceded by the indicated course or courses or other requirements.

Coreq: (corequisite) Course must be accompanied by the indicated course or courses.

Cross-listed courses may be taken for major credit in more than one department, as indicated by cross-references which appear in parenthesis either before or after the title. In registering for cross-listed courses, the student should be certain that he has designated the department and course number under which he wishes to earn the credit.

**University and College
Administrations and Faculties**

Campus Maps

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HAROLD E. BAILEY, Ph.D., Professor of Pharmacognosy; B.A., 1930; Ph.D., University of California, 1935.
MARTIN BARR, Ph.D., R.Ph., Professor of Pharmaceutics and Vice President for Special Assignments (University); B.S. (Pharmacy), Temple University, 1946; M.S., Philadelphia College of Pharmacy and Science, 1947; Ph.D., Ohio State University, 1950.
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- MELVIN F. W. DUNKER, Ph.D., R.Ph., Professor of Pharmaceutical Chemistry; Ph.G., 1933; B.S. (Pharmacy), 1934; M.S., 1936; Ph.D., University of Maryland, 1939.
- GARY D. FENN, Ph.D., R.Ph., Associate Professor of Pharmaceutics; B.S. (Pharmacy), Ferris State College, 1957; M.S., 1960; Ph.D., Purdue University, 1962.
- ERNEST L. GURWICH, Pharm.D., R.Ph., Assistant Professor of Clinical Pharmacy; B.S. (Pharmacy), 1968; M.S., 1970; Pharm.D., Wayne State University, 1972.
- WENDELL T. HILL, JR., Pharm.D., R.Ph., Associate Professor of Hospital Pharmacy and Director of Pharmaceutical Services, Detroit General Hospital; B.S. (Pharmacy), Drake University, 1950; M.S., 1954; Pharm.D., University of Southern California, 1971.
- ANDREW K. S. HO., Ph.D., Assistant Professor of Pharmacology; B.S., 1963; M.S., Melbourne University (Australia), 1965; Ph.D., Monash University (Australia), 1967.
- CHIAN L. HUANG, M.D., Ph.D., Professor of Pharmacology; B.S. (Pharmacy), Tohoku College of Pharmacy (Japan), 1943; M.D., National Taiwan University, 1947; M.S., Butler University, 1957; Ph.D., Nagasaki University (Japan), 1959; Ph.D., University of Maryland, 1960.
- WILLIS E. MOORE, Ph.D., R.Ph., Professor of Pharmaceutics; B.S. (Pharmacy), 1949; Ph.D., Ohio State University, 1953.
- RICHARD K. MULVEY, Ph.D., R.Ph., Associate Professor of Pharmacology; B.S. (Pharmacy), 1942; M.S., 1950; Ph.D., Purdue University, 1954.
- PAUL J. MUNZENBERGER, Pharm.D., R.Ph., Assistant Professor of Clinical Pharmacy; B.S. (Pharmacy), 1968; M.S., 1970; Pharm.D., Wayne State University, 1972.
- JANARDAN B. NAGWEKAR, Ph.D., Professor of Pharmaceutics; B.S., Baroda University (India), 1953; B.S. (Pharmaceutical Technology), Bombay University (India), 1956; M.S., Philadelphia College of Pharmacy and Science, 1960; Ph.D., Temple University, 1965.
- GERALD E. SCHUMACHER, Ph.D., R.Ph., Associate Professor of Pharmaceutics and Director of Clinical Education and Research Programs; Pharm.D., 1961; M.S., University of Southern California, 1964; Ph.D., Wayne State University, 1972.
- ROBERT E. SMITH, Pharm.D., R.Ph., Assistant Professor of Clinical Pharmacy; B.A., Arizona State University, 1965; Pharm.D., University of Southern California, 1969.
- LARRY N. SWANSON, Pharm.D., R.Ph., Assistant Professor of Clinical Pharmacy; Pharm.D., University of Southern California, 1969.
- CECELIA N. TURCZYNSKI, B.S. (Pharmacy), R.Ph., Instructor in Pharmaceutics; B.S. (Pharmacy), Wayne State University, 1945.
- HENRY C. WORMSER, Ph.D., R.Ph., Associate Professor of Pharmaceutical Chemistry; B.S. (Pharmacy), 1959; M.S., Temple University, 1961; Ph.D., University of Wisconsin, 1965.
- PERCY R. McCLAIN, M.S., R.Ph., Adjunct Assistant Professor of Hospital Pharmacy; B.S. (Pharmacy), University of Michigan, 1952; M.S., Wayne State University, 1969.
- MAXWELL H. MILLER, M.S., R.Ph., Adjunct Instructor in Hospital Pharmacy; B.S. (Pharmacy), 1948; M.S., Wayne State University, 1963.
- LYLE F. MOORE, M.S., R.Ph., Adjunct Assistant Professor of Pharmacy; B.S. (Pharmacy), Ferris State College, 1958; M.S., Wayne State University, 1970.
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- JUDITH M. SLINING, M.S., R.Ph., Adjunct Assistant Professor of Clinical Pharmacy; B.S. (Pharmacy), Ferris State College, 1962; M.S., Wayne State University, 1971.
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Cooperating Faculty

- GLEN A. JOHNSTON, M.D., Assistant Professor of Pathology; B.A., 1960; B.S., University of North Dakota, 1961; M.D., Northwestern University, 1963.

Voluntary Preceptors — Demonstration Clinical Internship Program

- DANIEL ASHBY, R.Ph.
 ROBERT BARGER, M.S., R.Ph.
 PERCY BALLARD, R.Ph.
 GERALD BODENDISTEL, R.Ph.
 LAWRENCE CANTOR, R.Ph.
 EDWIN DINTSCH, R.Ph.
 JOHN DRYPS, R.Ph.
 HAROLD GOLD, R.Ph.
 JOSEPH GRIMAUDO, R.Ph.
 ROBERT HEISLER, R.Ph.
 WENDELL HILL, JR., Pharm.D., R.Ph.
 WALTER HORTA, R.Ph.
 ARTHUR KOORHAN, R.Ph.
 G. RICHARD KRIEGER, R.Ph.
 ROBERT KROTZER, R.Ph.
 RONALD LUKASIEWICZ, M.S., R.Ph.
 WILLIAM MASKILL, R.Ph.
 PERCY McCLAIN, M.S., R.Ph.
 JULIUS MEGYESI, R.Ph.
 LYLE MOORE, M.S., R.Ph.
 ROBERT MURRAY, R.Ph.
 PAT ROUBIE, Pharm.D., R.Ph.
 MARTIN SCHAFFER, Pharm.D., R.Ph.
 ARTHUR SHINN, Pharm.D., R.Ph.
 PAUL SIROIS, R.Ph.
 JUDITH SLINING, M.S., R.Ph.
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- ROBERT O. BOLLINGER, Ph.D., Adjunct Assistant Professor of Pharmaceutical Chemistry; B.S. (Biology), 1963; Ph.D., Wayne State University, 1972.
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JOHN F. GARDE, B.S., CRNA, Chairman and Instructor
CELESTINE M. HARRIGAN, B.A., CRNA, Instructor
CARRIE BLACKWELL, B.S.N., CRNA, Adjunct Instructor

Department of Medical Technology

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MIRIAM THRALLS, M.A., O.T.R., Assistant Professor
ELIZABETH WALTON, M.Ed., O.T.R., Assistant Professor
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ELIZABETH BOLES, M.A., O.T.R., Adjunct Assistant Professor
MILDRED ETTER, M.A., O.T.R., Adjunct Assistant Professor
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AUDREY HILLERT, B.S., O.T.R., Adjunct Instructor
ELEANORE McCURRY, B.S., O.T.R., Adjunct Instructor
SHARON PULJU, B.S., O.T.R., Adjunct Instructor
ROCHELLE ROSSMAN, B.S., O.T.R., Adjunct Instructor
PATRICIA TAYLOR, B.S., O.T.R., Adjunct Instructor
SARI TOTH, B.S., O.T.R., Adjunct Instructor
JOSEPH WANCHIK, B.S., O.T.R., Adjunct Instructor
THOMAS SULLIVAN, M.D., Part-Time Faculty

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ROBERTA F. COTTMAN, M.A., R.P.T., Chairman and Assistant Professor
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CLAIR G. THOMAS, B.S., R.P.T., Adjunct Instructor
MABLE BURNS, M.A., R.P.T., Part-Time Faculty
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CHRIS SEPPER, M.A., R.P.T., Part-Time Faculty

COOPERATING FACULTY FROM THE SCHOOL OF MEDICINE

Anatomy

CLEMENT A. FOX, Ph.D., Professor and Chairman
DUNCAN T. KENNEDY, Ph.D., Assistant Professor

ROBERTA POURCHO, Ph.D., Assistant Professor
MARTHA K. RODIN, Ph.D., Assistant Professor
EDWARD G. TRACY, Ph.D., Assistant Professor

Anesthesiology

GERHARD C. ENDLER, M.D., Assistant Professor and Acting Chairman
ORLANDO SISON, M.D., Assistant Professor
SIK W. TING, M.D., Associate Professor
GRANT WITHEY, M.D., Adjunct Assistant Professor

Biochemistry

RAY K. BROWN, M.D., Ph.D., Professor and Chairman
ROBERT M. JOHNSON, Ph.D., Assistant Professor
JAMES J. LIGHTBODY, Ph.D., Assistant Professor
DONALD OBERLEAS, Ph.D., Assistant Professor, Internal Medicine
VISHWANATH M. SARDESAI, Ph.D., Associate Professor, Surgery
FRANK N. SYNER, Ph.D., Associate Professor, Obstetrics and Gynecology

Immunology and Microbiology

NOEL R. ROSE, Ph.D., Professor and Chairman
LARRY D. BACON, Ph.D., Assistant Professor
BYUNG-KIL CHOE, Ph.D., Assistant Professor
LILLY JONES, Ph.D., Assistant Professor
YI-CHI M. KONG, Ph.D., Associate Professor
V. FAY RIGHTHAND, Ph.D., Assistant Professor
ROBERT H. SWANBORG, Ph.D., Associate Professor

Neurosurgery

VOIGT R. HODGSON, Ph.D., Assistant Professor

Pathology

JACOB L. CHASON, M.D., Professor and Chairman
BARBARA F. ROSENBERG, M.D., Professor
BARBARA A. DEFEVER, M.D., Instructor
JOHN WIDMAN, M.Sc., Instructor

Physical Medicine and Rehabilitation

JOSEPH N. SCHAEFFER, M.D., Professor and Chairman

Physiology

WALTER H. SEEGER, Ph.D., Sc.D., Professor and Chairman
ROBIN BARRACO, Ph.D., Assistant Professor
PAUL CHURCHILL, Ph.D., Assistant Professor
JOSEPH DUNBAR, Ph.D., Assistant Professor
CHRISTOPHER FREDERICKS, Ph.D., Assistant Professor
LOWELL E. McCOY, Ph.D., Associate Professor
GENESIO MURANO, Ph.D., Assistant Professor
JAMES A. RILLEMA, Ph.D., Assistant Professor

Affiliated Centers for Clinical Experience

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KENNETH LAUTERWASSER, B.S., R.P.T., Chief, Physical Therapy

Children's Hospital of Michigan

SARI TOTH, B.S., O.T.R., Director, Occupational Therapy
BEVERLY SCHMOLL, M.A., R.P.T., Director, Physical Therapy

Clinton Valley Center

ELEANORE McCURRY, B.S., O.T.R., Director, Occupational Therapy

Cottage Hospital

CAROL DECKER, B.S., O.T.R., Director, Occupational Therapy

Detroit General Hospital

CHARLOTTE BARTZACK, M.S., M.T. (ASCP)BB, Assistant Head, Medical Technology

OTTO FEINSTEIN, Ph.D., Professor and Director, University Studies and Weekend College, College of Lifelong Learning
 JOSEPH E. HARRY, Ph.D., Assistant Professor, Department of Sociology, College of Liberal Arts
 MARK L. KAHN, Ph.D., Professor, Department of Economics, College of Liberal Arts
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 JUSTINE SPEAR, M.S., Assistant Professor, Clinical Department, College of Nursing
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 HJALMAR ROSEN, Ph.D., Professor, Department of Psychology, College of Liberal Arts

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 HELEN ANNIS, M.D.
 ABRAHAM BRICKNER, M.S.W.
 MILDRED ELLIS, M.S.W.
 LAWRENCE GUSMAN, Ph.D.
 NANCY KULISH, Ph.D.
 MARVIN MELTZER, Ed.M.
 EMILY PALMER, M.S.W.
 JUDITH RUZUMNA, Ph.D.
 JOAN SLYKER, M.S.W.
 ANTAL SOLYOM, M.D., Ph.D.

Staff

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 HELEN FRIEDMAN
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 LAURA GRADY
 DOROTHY JONES
 PAM KULBA
 ELEANOR McCRAE
 EMILY MILNER
 AUDREY MINOR
 MARILYN MITCHELL
 TINA POLLARD
 PHYLLIS ROBB
 DOLORES ROBINSON
 JOYCE SCHMITZ
 SARAH SWARTZ

Field Instruction

The following agencies and persons have worked with members of the faculty in field instruction during the fall quarter of 1973-1974.

Adult Care Services, Senior Center, Inc.
 JOYCE BARCOME, M.S.W.

Area Services Association
 TY SHIN, M.S.W.; DONALD WATKINS, M.S.W.

Brightmoor Community Center
 HELEN CHARNEY, M.S.W.; RUTH EDELMAN, M.S.W.

Catholic Family Services of Saginaw
 WALTER BRADTKE, M.S.W.

Catholic Social Services of Oakland County
 LEO BLAYER, M.S.W.; LUCY CHENG, M.S.W.; ROBERTA LYNCH, M.S.W.; THERESA WEBER, M.S.W.

Catholic Social Services of Washtenaw County
 ELIZABETH BERRY, M.S.W.; MARGARET OHLGREN, M.S.W.

Children's Aid and Family Services of Macomb
 RICHARD DOBBECK, M.S.W.

Children's Hospital of Michigan
 HAROLD WEISS, M.S.W.

Citizens for Better Care
 CHARLES CHOMET, M.S.W.; DOUGLAS ROBERTS, M.S.W.

Clawson Senior Center
 KATHERINE THOMPSON, B.A.

Clinton Valley Center
 WAYNE BABCOCK, M.S.W.; PAUL BLOMGREN, M.S.W.; EDWIN KEENER, M.S.W.; JUDITH WARWICK, M.S.W.

Comprehensive Health Planning Council
 JUANITA GODLEY, M.S.

Councilman Carl Levin, Office of Councilwoman Erma Henderson, Office of Detroit Baptist Children's Home
 PATRICIA CAPLAN, M.S.W.; NORA MELLS, M.S.W.

Detroit General Hospital, Department of Social Services Detroit Health Department, Substance Abuse Program
 JAMES SALL, M.A.

Detroit Urban League
 RICHARD TAYLOR, M.S.W.

Don Bosco Hall
 MELVIN GEORGE, M.S.W.

Downriver Guidance Clinic
 JACK BARRETT; ELIZABETH BUDD, M.S.W.; DEANNA FARRAH, M.S.W.; NANCY HAYES, M.S.W.; JOHN ROOT, M.S.W.

Drug Systems, Inc.
 JUANITA DOSS, M.S.W.

Family and Children Services of Oakland
 NELL JANES, M.S.W.; GERALD MAYNARD, M.S.W.; PATRICIA PELL, M.S.W.; CLAIR VOETBERG, M.S.W.

Family and Neighborhood Services
 ALTON SHELLEY, M.S.W.

Family Service of Greater Toledo
 ROGER MATHRE, M.S.W.

Franklin-Wright Settlements, Inc.
 ELLEN DEVINE, M.S.W.

Health Education About Drugs Center
 LOREN HOFFMAN, M.S.W.

Housing and Community Development, Wayne State University School of Social Work

Inkster Comprehensive Services for the Elderly
 ROSALIND DAVIS, M.A.; FLORENCE KURTZ, B.A.; MARIE MAYBERRY, M.A.

Institute for Study of Mental Retardation and Related Disability
 MARTHA DICKERSON, M.S.W.

Institute of Gerontology
 ROBERT GRAHAM, Ed.M.

Jewish Community Center of Metropolitan Detroit
 RENA GOLDSMITH, M.S.W.

Lafayette Clinic
 BOB AMIDON, M.S.W.; MARGUERITE FLYNN, M.S.W.; MARGOT STERREN, M.S.W.; CHARLOTTE STONESTREET, M.S.W.

Local 1640 — American Federation of State, County, Municipal Employees
 MILT TAMBOR, M.S.W.

Marillac Hall
 GAIL CARTIER, M.S.W.

Mayor — Common Council Task Force on Hunger and Malnutrition

MCHRD — Child Development Division
 FAYE PARKS, M.S.W.

Michigan Committee on Law and Housing
JOSEPH GUGGENHEIM, M.S.

Michigan Department of Civil Rights
JUAN CASTILLO, M.A.

Model Neighborhood Drug Abuse Program
BRENDA BLAIR, M.S.W.

Northeast Guidance Center
BARBARA SIMONS, M.S.W.

Northeast Inter-Faith Center for Racial Justice
LEE TYLER, M.S.W.

Northville State Hospital — Outpatient Clinic
ALVIN MOZUR, M.A.

Oakland County Children's Day Center
GRACE GOLDBERG, M.S.W.

Oakland County Juvenile Court, Camp Oakland
JIM WUERTENBERG, M.S.W.

Oakland County Youth Assistance Program
ED FLOOD, M.S.W.; RICHARD THIBODEAU, M.S.W.

People Acting for Change Together (PACT)
JO-ANN TERRY, B.A.

Pontiac General Hospital, Mental Health Clinic
AUDLEY BAILEY, M.S.W.; LARRY McMELLAN, M.S.W.;
LOREN O'DEA, M.S.W.

Project Headline
CHARLES STERN, M.A.

Project Prescad
BARBARA NELSON, M.S.W.; CORENE WIERZBA, M.S.W.

Providence Hospital, Mental Health Clinic
JEROME AVRUSHIN, M.S.W., Ed.Spec.

St. Anthony Parish, Detroit
PAUL FETTIG, M.S.W.

St. Peter's Home for Boys
ROBERT W. WRIGHT, M.S.W.

School District of the City of Detroit, Parent-Child Center
JONELL NASH, B.S.

Sinai Hospital — Medical Social Services
MINNIE TERONDE, M.S.W.

*Six Area Coalition Community Mental Health Center
The Orchards*
DAN UTCHENIK, M.S.W.

*United Automobile Workers Retired Workers
Centers, Inc. Detroit*
EDWARD ALLARDICE, M.S.W.

United Community Services of Oakland County
ROBERT LETTIS, M.S.W.

United Farm Workers
ARTURO RODRIGUEZ, M.S.W.

Urban Collaboratives
WILLIAM SMITH, M.U.P.

Use of the Media in Social Work
Veterans Administration Hospital, Allen Park
LAURA DAVIS, M.S.W.; VALERIE GIBERMAN, M.S.W.;
AARON RUBIN, M.S.W.; DONNA SYPRET, M.S.W.

Veterans Administration Hospital, Ann Arbor
ROSE LEWIS, M.S.W.

Vista Maria School
DOROTHY MARDEUSZ, M.S.W.

*Wayne County Board of Commissioners,
Office of Program Planning*
JAMES CURRAN, M.S.W.

*Wayne County Community College,
Office of Program Development*
STEVEN WEISS, M.S.W.

Wayne County Juvenile Court
LUCY ARZOIAN, M.S.W.; DAVID FARGO, M.S.W.;
MAGALENE HESTER, M.S.W.; MELVIN TURNER, M.S.W.

Wilshire Extended Care Facility
BELMA FERRIS, R.N.

Windsor Group Therapy Project
DALE SWAISGOOD, M.S.W.

Women's Caucus — Michigan Democratic Party
Young Men's Christian Association of Metropolitan Detroit
TED JORDAN, M.S.W.

*Youth Movements Unit, Wayne State University
of Social Work*

Youth Services Center of East Detroit
EDGAR A. KRATTLI, M.S.W.

Community Mental Health Learning Center

Children's Center of Wayne County
MICHAEL HURLEY, M.S.W.; CAROL SALINGER, M.S.W.

Detroit Psychiatric Institute
ROSEMARY HASSE, M.S.W.; JOHN MESSANA, M.S.W.;
CECIL MOIX, M.S.W.; ANITA PARKER, M.S.W.;
CHARLOTTE RUSSELL, M.S.W.; GARLAND SANDERS,
M.S.W.

Downriver Guidance Clinic
JULIUS GRESHAM, M.S.W.

Hawthorn Center
JEAN VILTER, M.S.W.

Highland Park Mental Health Center
FLOYD WYLIE, Ph.D.

Island View Adolescent Center
DAVID GOLDBERG, M.S.S.

Kingswood Hospital
ARTHUR MONTAGNE, M.S.W.; WILLIAM YOCHIM, M.S.W.

Jeffries Nursery School, Wayne State University
Macomb Child Guidance Clinic, Inc.
WALLACE LORD, M.S.W.

Macomb County Office of Drug Abuse
WILLIAM McSHANE, M.S.W.

*Neighborhood Service Organization —
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Northeast Guidance Center
FABU OMARI, M.S.W.; PATRICIA SIMS, M.S.W.

Northville State Hospital
HERBERT FERGUSON, M.S.W.; LOUISE RUNKEL, M.S.W.;
LARRY TYNON, M.S.W.

Oakland County Child and Adolescent Clinic
JUDY SMITH, M.S.W.

*Oakland County Community Mental Health
Service Board — Mental Retardation Services*
FRED KRUEGER, M.S.W.

Operation Friendship
ALLAN GELFOND, M.S.W.; ADRIENNE JAMES, M.S.W.;
DOROTHY ROER, M.S.W.

Operation Hope Community Mental Health Center
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Community Guidance Center*
MARTIN BROWN, M.S.W.

Sinai Hospital — Psychiatric Social Service Department
EUGENE HUGHLEY, M.S.W.; DONALD KNOLL, M.S.W.

Southeastern Macomb Mental Health Center
CHARLOTTE ARKIN, M.S.W.

Southwestern Macomb Community Mental Health Center
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Wayne County Mental Health Clinic
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Family Functioning Learning Center

Bi-County Community Hospital
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Catholic Social Services of Wayne County
JEANNINE ELLIS, M.S.W.; CHARLES GEIGER, M.S.W.

Community Health and Social Services
FAUSTINA KNOLL, M.S.W.

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M.S.W.

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CARL O'ROURKE, M.S.W.; BETTY PECSENYE, M.S.W.

Hutzel Hospital
JUDITH KATZ, M.S.W.

International Institute of Metropolitan Detroit
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Macomb County Office of Drug Abuse
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Court of Wayne County*
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EVELYN SETTLES, M.S.W.

Methodist Children's Home Society
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COANNE JOHNSON, M.S.W.

Michigan Cancer Foundation
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SHARON KLEIN, M.S.W.

Office of Dr. George Mogill

Office of Dr. Louis Zako

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Roemer Clinic

St. Francis Home for Boys
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Children's Hospital of Michigan
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Probate Court Division, Macomb County
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American Civil Liberties Union
ERNEST MAZEY

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EVELYN GARNER, M.A.

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GAYLE KIPP, M.S.W.

Oakland Schools, School Social Work Service

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University of Michigan, Dearborn Campus, Special Projects

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School Social Work Service

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Administration

WALTER D. POOL, M.D., Director

GORDON W. ROSE, Ph.D., Associate Director

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School of Business Administration

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C. BEAVER EDWARDS, Instructor in Modeling

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Accounting, School of Business Administration

ROBERT FREIBURGER, Instructor in Restorative Art

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Mortuary Psychology

DAVID B. MEYER, Ph.D., Professor of Anatomy, School

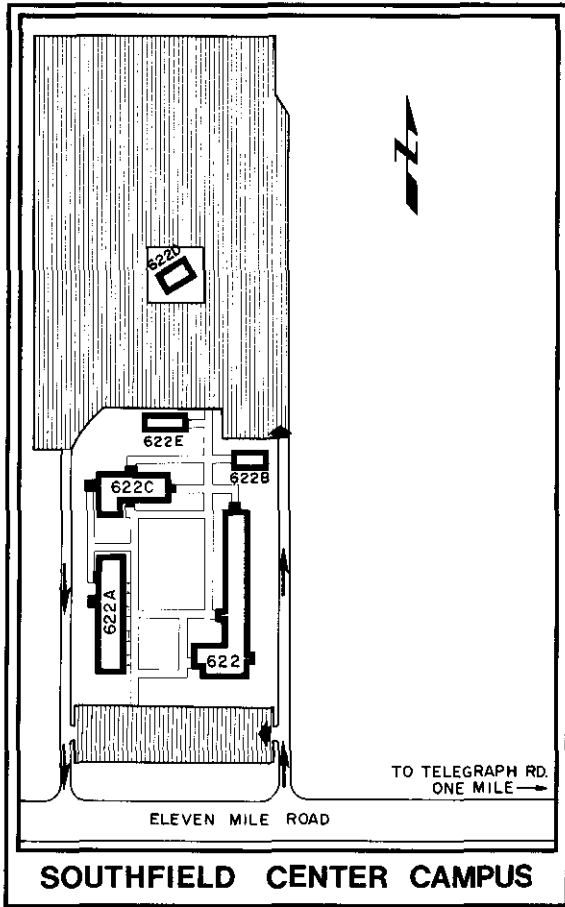
of Medicine

WILLIAM BENNETT YORT, B.A., Instructor in

Mortuary Management

MARY L. NEBEL, Ph.D., Professor of Chemistry,

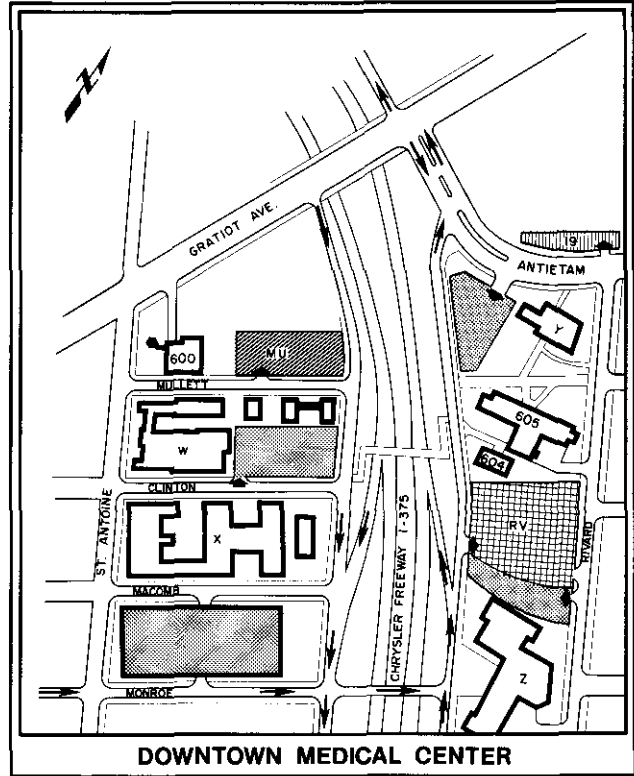
Detroit Institute of Technology



SOUTHFIELD CENTER CAMPUS

SOUTHFIELD CENTER

- 622 Administrative Office and Classroom Building
- 622A Classroom Building
- 622B Classroom Building
- 622C Library and Lounge



DOWNTOWN MEDICAL CENTER

DOWNTOWN MEDICAL CENTER

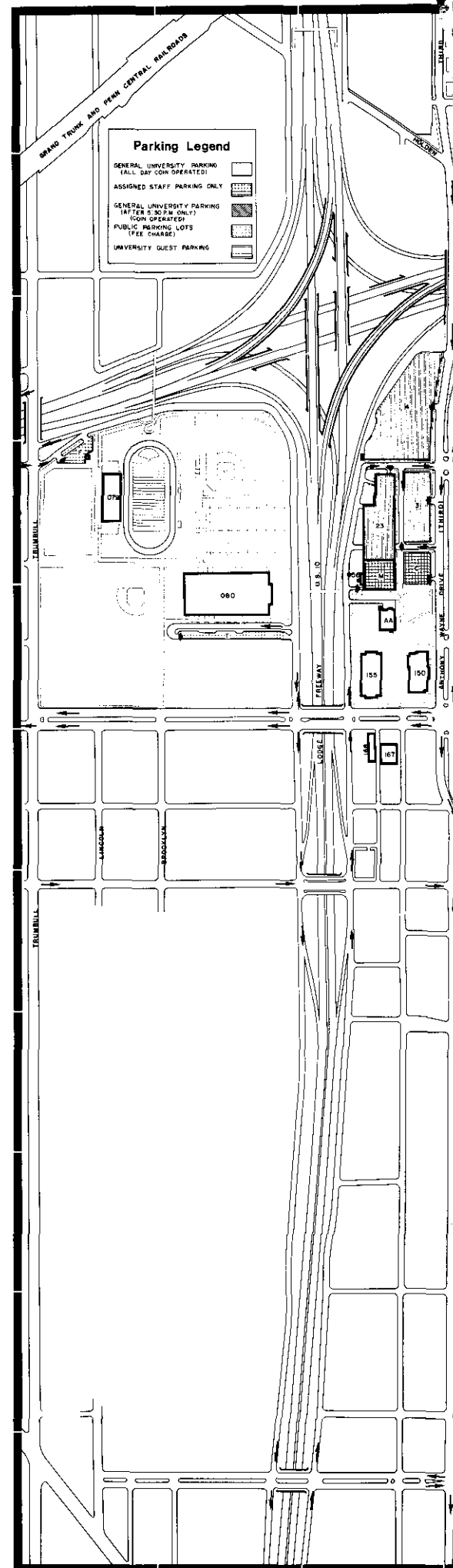
- 600 Clinical Laboratory Building
- 604 Health Sciences Annex
- 605 Health Sciences
- W Detroit Memorial Hospital
- X Detroit General Hospital
- Y Wayne County Medical Society
- Z Lafayette Clinic

MAIN CAMPUS

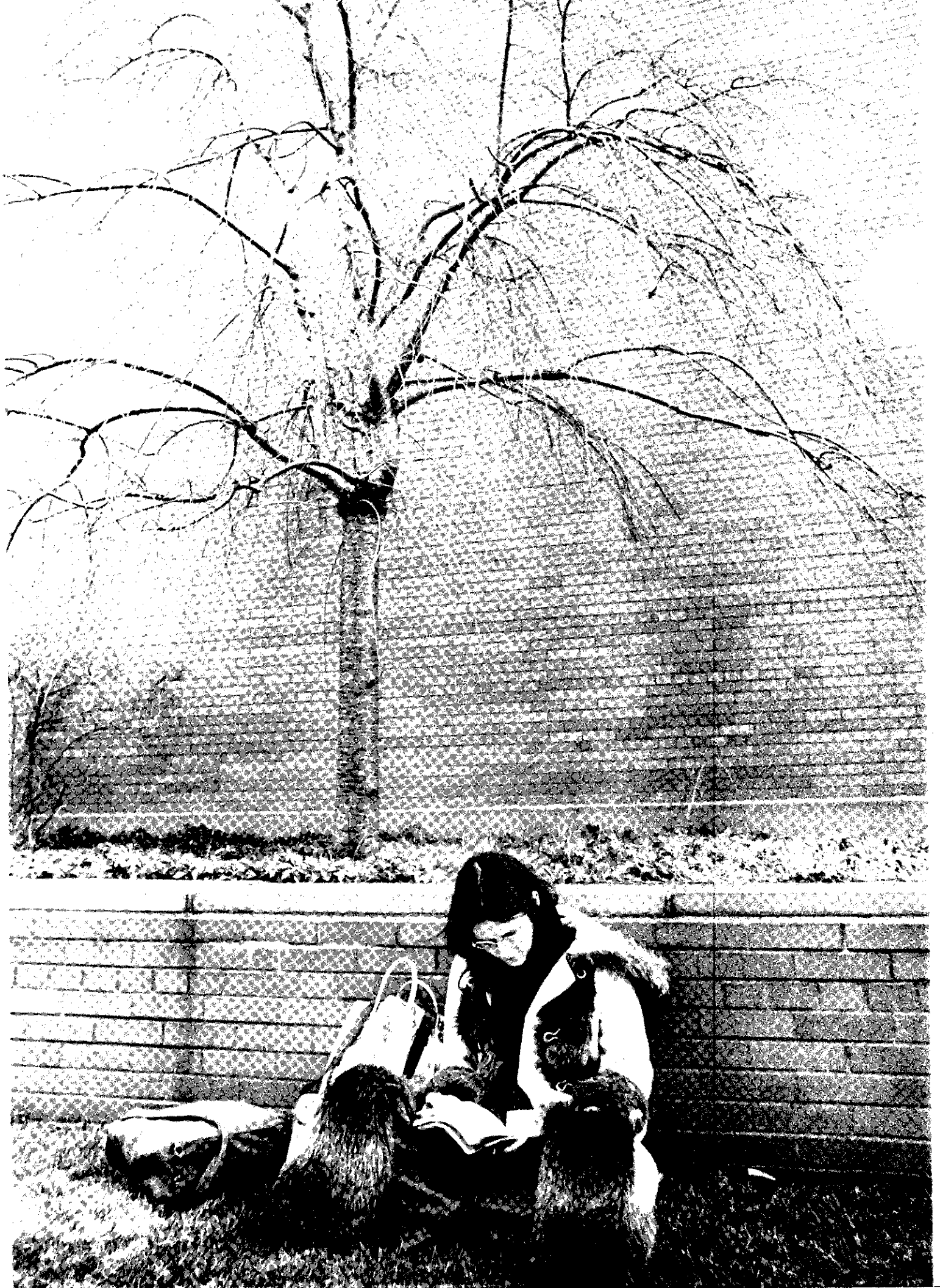
- 001 Old Main
- 003 Physics Building
- 005 Science Hall
- 006 Life Sciences Building
- 007 Chemistry Building
- 008 Science Library
- 016 State Hall
- 018 Monteith Center
- 022 Meyer and Anna Prentis Hall
- 023 Helen L. DeRoy Lecture Hall
- 026 G. Flint Purdy Library
- 027 Kresge Library
- 028 Center for Urban Studies
- 033 Art and Art History Building
- 034 Student Center
- 036 Walter P. Reuther Library of Labor and Urban Affairs
- 038 Music Wing — Community Arts Center
- 039 Community Arts Auditorium
- 040 Art Wing — Community Arts Center
- 042 Alumni House — Community Arts Center
- 043 McGregor Conference Center
- 048 Richard Cohn Hall
- 050 Shapero Hall of Pharmacy
- 051 Parking Structure No. 1
- 053 Law School
- 056 Parking Structure No. 2
- 060 University Services Building; Bookstore North
- 064 Institute of Labor; University Development Offices
- 069 David Mackenzie Hall; University Bookstore
- 072 Parking Structure No. 3
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- B Detroit Public Library
- D Merrill-Palmer Institute
- E International Institute
- F Detroit Institute of Arts
- G Rackham Educational Memorial Building

DETROIT MEDICAL CENTER

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- 609 C. S. Mott Center for Human Growth and Development
- 611 Medical Research Building
- 612 Gordon H. Scott Hall of Basic Medical Sciences
- 615 Kresge Eye Institute
- J Prentis Cancer Center
- K The Grace Hospital
- L Harper-Webber Hospital
- M Harper Hospital
- N Rehabilitation Institute
- O Hutzel Hospital
- P Children's Hospital of Michigan







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