THE GRADUATE COLLEGE
Western Michigan University

1973
1974
Section IV Doctoral Degree Programs and Requirements

General Requirements for a Doctoral Degree

Programs Leading to a Doctoral Degree

Chemistry

Educational Leadership

Counseling and Personnel

Mathematics

Science Education

Sociology

Section V Description of Graduate Courses

College of Applied Sciences

Applied Science

Agriculture

Distributive Education

Electrical Engineering Technology

Engineering and Technology

Home Economics

Industrial Education

Mechanical Engineering Technology

Occupational Therapy

Paper Science and Engineering

College of Arts and Sciences

Arts and Sciences

Anthropology

Biology

Black Americana Studies

Chemistry

Communication Arts and Sciences

Economics

English

Geography

Geology

History

International and Area Studies

Languages, Modern and Classical

Linguistics

Mathematics

Medieval Studies

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Session Ends .................................................... August 23, 1974
Commencement .................................................... August 23, 1974
6:00 P.M.

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Philip N. Watterson, Cascade December 31, 1974
Mildred Swanson Johnson, Muskegon December 31, 1976
Robert D. Caine, Hickory Corners December 31, 1976
Fred W. Adams, Grosse Pointe December 31, 1978
Charles H. Ludlow, Kalamazoo December 31, 1978
John R. Dykema, Grosse Pointe Farms December 31, 1980
Maury Lyon Parfet, Hickory Corners December 31, 1980
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Ex-Officio

3
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George G. Mallinson, Ph.D., Dean, The Graduate College
Clayton J. Maus, M.A., Dean, Admissions and Records
Robert Beecher, J.D., Controller

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Peter Schmitt, Ph.D., Department of History
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Louis Steinberg, Graduate Student
John H. Stroupe, Ph.D., Department of English
Betty Taylor, Ph.D., Department of Home Economics
David R. Taylor, Ed.D., Department of Teacher Education
Western Michigan University was established by the State Legislature in 1903. Although the University has continued to meet its initial obligation, the preparation of teachers, the growing educational needs of the State have changed the role of the institution to that of a multi-purpose university. Students today may enroll in undergraduate and graduate programs in the Colleges of Applied Sciences, Arts and Sciences, Business, Education, and Fine Arts, as well as in the Schools of Librarianship and Social Work. The University's enrollment for Fall, 1972, was 21,128 with 3,239 enrolled in graduate programs.

Graduate programs were first offered in 1938 in cooperation with the University of Michigan. This cooperative program continued until 1952, when the State Board of Education authorized Western to grant its own Master's degree. With rapidly increasing enrollments, new Master's degree programs were initiated. Today Western Michigan University has fifty-nine Master's degree programs. Master of Arts degrees are awarded in twenty-three programs in the following general categories within the College of Education: Educational Leadership, Counseling-Personnel, Special Education, Blind Rehabilitation, Audiovisual Media, Teaching the Economically and Educationally Disadvantaged, Teaching of Reading, Teaching in the Community College, and Curricula in Teaching. Twenty-three other educational programs at Western also lead to the Master of Arts degree; Anthro-

In 1960 programs leading to the Specialist in Education degree were introduced. Upon completion of a sixth-year program, this degree is offered in Educational Leadership, Counseling-Personnel, Special Education, and School Psychology. In addition, the University offers Specialist in Arts degrees in Business Education, English, History, International and Area Studies, Librarianship, Mathematics, and Science Education.

Doctoral programs were initiated in 1966 and were fully accredited by the North Central Association in 1971. Four of these programs, those in Chemistry, Mathematics, Science Education, and Sociology, lead to the Doctor of Philosophy degree. A program leading to the Doctor of Education degree is offered by the Departments of Educational Leadership and Counseling-Personnel.
SECTION 1

General Policies And Procedures

ADMISSION DATES

Admission to The Graduate College is required for permission to register for graduate classes. A student planning to register must apply for admission no later than:

- July 1 for Fall Semester
- November 1 for Winter Semester
- March 1 for Spring Session
- May 1 for Summer Session

A foreign student must apply for admission by March 15 for the Fall Semester and September 15 for the Winter Semester.

A graduate student retains active admission status for one year from the time of his admission as well as one year from the date of his last enrollment in The Graduate College.

When a graduate student no longer has active admission status he may request it by submitting a re-entry application to The Graduate College at least one month before registering for classes. A student who plans to attend classes after receiving an advanced degree also needs to submit an application for re-entry.

ADMISSION APPLICATION FEE

A non-refundable application fee of $10 must accompany an application for admission to The Graduate College.

ADMISSION PROCEDURES

Admission to The Graduate College is secured through the following steps:

1. Request of The Graduate College an "Application for Admission." The request should indicate the degree level for which an application is desired: Master’s, Specialist’s, Doctor’s.

2. Determine from The Graduate College Bulletin the type of admission that is desired, the degree sought, and the curriculum to be studied.

3. Return the "Application for Admission" and the $10 application fee before the published deadlines for admission.
4. Request the Registrar of each college previously attended, except Western Michigan University, to send an official transcript of credits to The Graduate College. The transcripts are due in The Graduate College prior to the established deadline date for admission.

5. Take the English Qualifying Examination at the time specified by The Graduate College. Other tests may be required by some departments.

ADMISSION OF FOREIGN STUDENTS

A foreign student with a degree from an institution in the United States will be considered for admission on the same basis as that for a resident. A foreign student whose academic record is based totally, or in large part, on an education acquired in a foreign country(s) will be reviewed on an individual basis by The Graduate College and the Department in which he wishes to pursue graduate study. Application for admission may be secured from the Office of Foreign Student Affairs.

TYPES OF ADMISSION

1. Admission Without Reservation. This type of admission is awarded to the student who has an acceptable academic record, who has passed the required entrance examinations, and who has met the admission requirements of the program he plans to pursue. Acceptance to a definite program of study leading to a degree is dependent upon the approval of the unit in which the student plans to study. For further information see the admission requirements of the curriculum to be studied.

2. Tentative Admission Pending Receipt of the Bachelor’s Degree. A student may receive tentative admission during the final semester or session of his undergraduate work if his academic record is satisfactory. Final admission will be granted when an official transcript is submitted giving evidence of the Bachelor’s degree.

3. Dual Enrollment Admission. A senior at Western Michigan University with an acceptable academic record, who needs no more than six hours to complete the requirements for the Bachelor’s degree, may seek admission to The Graduate College for the semester prior to graduation. If admission is granted, the student may elect graduate courses, in addition to those required at the undergraduate level to complete the Bachelor’s degree, to encompass a full academic program. Such dual enrollment is permitted for one semester only. Graduate credit thus earned may not be used to meet undergraduate requirements.

4. Admission to Non-Degree Status. A student whose point-hour ratio ranges from 2.30 to 2.59 in the final two years of undergraduate study may seek admission to non-degree status. The approval of the unit in which the student plans to pursue graduate study is required for a student desiring admission on a non-degree basis. A student admitted to non-degree status because of his low academic record may
establish eligibility for admission to a degree program by securing no grades below "B" in any credits earned, by securing satisfactory scores on the Graduate Record Examination, and by passing the English requirement. A student admitted on a non-degree basis is not permitted to include more than nine hours of credit earned as a non-degree student in a degree program. At least six of these nine credits must be taken on the campus of Western Michigan University. No assurance can be given a non-degree student that any credits earned will be accepted in a degree program or used to meet the requirements for graduation.

5. Admission from a Non-Accredited College. A student who has received a Bachelor's degree from a non-accredited college, but who otherwise meets all the requirements for admission, may be permitted to elect nine hours of graduate work with the stipulation that his admission will be reviewed after the completion of the nine hours.

6. Admission as Guest Matriculant. A student who is already enrolled in a graduate school of another college or university may enroll for courses at Western Michigan University as a Guest Matriculant. Application forms for such admission are available at The Graduate College.

7. Permission to Take Classes. When a student does not desire a degree or is not eligible for admission to a degree program, he may request this type of limited admission status. Certain classes will be closed to him such as those in the College of Business. Credits earned under this limited admission status do not lead to a degree. This status will enable the following to enroll in graduate courses:

- A student studying in a federally supported institute.
- A student desiring courses for his own professional development.
- A student seeking teacher certification who is ineligible for degree status.
- A student seeking a certificate in a specialized area.

8. Admission to the Professional Improvement Program. A student whose point-hour ratio is below 2.30 in the final two years of his undergraduate program is not eligible for admission to a degree program in The Graduate College. Such a student cannot establish eligibility by studying on a non-degree basis. He may, however, secure admission to an organized Professional Improvement Program. Credits earned by a student thus enrolled may be submitted for professional certification but will not lead to a degree.

REGISTRATION

Registration will be held according to the schedule and procedures given in the Schedule of Classes, which is published prior to each semester and session. This Schedule will be sent upon request and should be consulted for details regarding the time and place of graduate classes. A student is encouraged to register as early as possible to facilitate securing the classes of his choice. Students are encouraged to register during the advanced registration period whenever possible since classes with low enrollment may be cancelled in order to reassign staff to areas of heavier student demand.

Any changes in a student's schedule must be made in accordance with the procedures announced in the Schedule of Classes. A student may drop graduate courses through the midpoint of each semester and session.
I. The normal full time load for a graduate student during the Fall and Winter semesters is three or four courses (9-13 hours), with at least nine hours needed to be classified as a full time student.

2. The normal full time load for a graduate student during the Spring and Summer sessions is two courses (5-8 hours), with at least five hours needed to be classified as a full time student.

3. The normal load for a student with a Graduate Assistantship, Program Fellowship or Associateship is two or three courses (6-9 hours).

4. A student who is employed should reduce his load accordingly. The normal load for a student employed full time is one course per semester or session.

COURSE NUMBERING SYSTEM

Two types of courses are offered in The Graduate College: (1) Those numbered 600 and above are open only to graduate students, and (2) those numbered 500 through 599 are open to both upperclassmen and graduate students. In all courses open to both upperclassmen and graduates, a distinction is made between the work expected from graduate students and that from undergraduates. The work expected from graduates may be of higher quality or greater quantity or both.

In certain instances, an adviser may permit a student to include up to six semester hours of 300-400 level courses in a graduate program, provided the student receives written permission from his adviser and The Graduate College prior to registering for these courses and then earns a grade of “B” or higher. Such courses are to be taken in cognate areas outside the student’s department or as part of an interdisciplinary program. These courses earn undergraduate credit which is not computed into the graduate point-hour ratio.

RESIDENCY

The following policy adopted by the Board of Trustees of Western Michigan University on May 15, 1964, applies to all students:

1. The residence of a student who is a minor follows that of his parents or legal guardians, except that a minor student who comes to the institution from another state or country cannot be registered as a resident of this state on the basis of having a resident of this state as a guardian except on permission of the Board of Trustees.

2. A person who has attained the age of majority at the time of registration in the institution and who has resided in this state six months next preceding the date of registration without being registered at a college or university during that period is deemed a resident of this state for the purpose of such registration.
3. The residence of a wife follows that of her husband, except that a woman student who is a resident under paragraph 1 or 2 may continue to register as a resident of this state although subsequently marrying a non-resident.

4. No person is deemed to have gained or lost residence in this state while a student at any institution in this state, public or private, except by changes in status effected under paragraphs 1, 3 or 5.

5. A person in the service of the United States, and his wife or minor children, who have met the six months residence requirements in paragraph 2, may register as residents of this state.

6. An alien lawfully admitted for permanent residence in the United States and who has obtained his permanent visa, and his wife or minor children, who have met the other requirements herein for residence, may register as residents of this state.

7. A member of the University staff and his dependents may register as residents of this state.

It shall be the duty of every student at registration, if there are any possible questions as to his right to legal residence in Michigan under the rules stated above, to raise the question with the Controller and have such questions passed upon and settled prior to registration.

**STUDENT FEES**

The following fee schedule is used for graduate study on campus:

<table>
<thead>
<tr>
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<th>Per Credit Hour</th>
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<tbody>
<tr>
<td>Resident</td>
<td>$24.00</td>
</tr>
<tr>
<td>Non-Resident</td>
<td>$58.00</td>
</tr>
</tbody>
</table>

Students enrolling for less than three hours will be assessed for three hours minimum.

The fee for graduate study in courses offered off campus through the Division of Continuing Education is $35.50 per credit hour.

Resident Study: Any graduate student who has previously registered for and received a grade of "Incomplete" for Master’s Thesis, Specialist Project, or Doctoral Dissertation and wishes to use the services of University staff and facilities to complete the work necessary to remove the "Incomplete" must, if he is not otherwise enrolled, pay a resident study fee of $25.00 for the semester, or $12.50 for a session.

Other fees:

- Admissions application fee $10.00
- English Qualifying Examination fee $2.00
- Graduation fee (assessed when the application for graduation is submitted to Bursar’s office) $10.00

Student fees are subject to change by Western Michigan University Board of Trustees at any time without notice.
REFUNDS AND CHANGE OF CLASS LOAD

All changes in registration or complete withdrawal require the approval of the Graduate Office before being made with the Records Office. A student who withdraws from the University or who reduces his credit hour load, resulting in lower fees, will be granted a partial refund of the total paid subject to the following conditions:

1. **Reducing Credit Hour Load:** A refund will not be granted for reducing the credit load after the final day for adding a course as established by the Dean of Records and Admissions.

2. Pre-registered students who have paid student fees prior to the last day of registration and who subsequently reduce their load during the drop-add period shall be entitled to a refund of 100% of any difference in the assessments.

3. Changes in student loads prior to the end of the final day for adding a course are reassessments.

GRADING SYSTEM

A student receives a grade in each course in which he registers. Grades are indicated by letters and assigned honor points as shown in the table below.

<table>
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<tr>
<th>Grade</th>
<th>Significance</th>
<th>Honor Points Per Hour Credit</th>
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<tbody>
<tr>
<td>A</td>
<td>Above Average</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Average</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Below Average</td>
<td>2</td>
</tr>
<tr>
<td>E</td>
<td>Failure</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>Unofficial Withdrawal</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal</td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>Credit</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
<td></td>
</tr>
</tbody>
</table>

E—Failure—A student admitted to a degree program must secure three hours of “A” to offset each hour of “E” in his graduate record.

X—Unofficial Withdrawal—The symbol “X” is used to indicate that a student has never attended class or has discontinued attendance and does not qualify for the grade of “I”. The “X” will be computed into a student’s honor-point ratio as hours attempted with zero honor points.

I—Incomplete—This is a temporary grade given for work which is passing in quality but lacking in quantity to meet course objectives. It is assigned when an instructor, in consultation with a student, concludes that extenuating circumstances prevent the completion of course requirements. Incompletes, except those given in Masters’ theses, Specialists’ projects, Doctors’ dissertations, and courses directly related to them, which are not removed within one calendar year will remain part of the student’s permanent record.
W - Withdrawal - A grade of "W" is given in a course when a student officially withdraws from that course or from the University before the mid-point of the semester or session.

CR or NC - Credit or No Credit - The credit/no credit grading system (A, B = credit; C, E = no credit) is used in all 700-level courses, as well as some departmental courses and programs approved by the Graduate Studies Council. The student's permanent record will indicate "CR" when the course is passed and "NC" when the course is incomplete or failed.

HONOR POINTS

The number of honor points earned in a course is the number of semester hours credit given by the course multiplied by the number of honor points per hour of credit corresponding to the letter grade received, as shown in the preceding table. For example, a grade of "B" in a four-hour course gives $4 \times 3$, or 12 honor points. Honor points are not involved in courses in which the credit-no credit grading system is used.

GRADUATED WITH HONORS: A student attaining a point-hour ratio of 4.0 at the conclusion of his graduate program will be "Graduated with Honors."

FELLOWSHIPS, ASSOCIATESHIPS, ASSISTANTSHIPS

Western Michigan University provides the following types of financial assistance to students pursuing graduate study:

1. University Fellowships of approximately $3,000 per year are available to students with Bachelor's degrees from accredited colleges and universities. They are granted on a competitive basis to persons who possess a combination of qualities indicating potential leadership in their respective fields. At least a "B" average in undergraduate study is necessary. Fellows are required to enroll on a full-time basis for a year and to pay all fees normally required of graduate students. Application forms, transcripts and letters of recommendation must be submitted to The Graduate College by February 15.

2. Program Fellowships of approximately $3,000 per year are available to students in special emerging programs. Program Fellows are expected to participate in approximately fifteen hours per week of professional activity consistent with their educational aims and objectives. Application forms, transcripts and letters of recommendation must be submitted to The Graduate College by February 15.

3. Thurgood Marshall Fellowships of approximately $1,000 per semester are available to students from minority groups. They are granted on the basis of scholarship and financial need. Thurgood Marshall Fellows are required to participate in approximately fifteen hours of professional activities per week consistent with their educational aims and objectives. Application forms, transcripts and letters of recommendation must be submitted to The Graduate College by February 15.
General Policies and Procedures

4. Associateships of approximately $4,000 per year are offered to graduate students enrolled in advanced degree programs beyond the Master's degree. Associates are required to participate in approximately fifteen hours per week of professional activity consistent with their educational aims and objectives. Application forms, transcripts and letters of recommendation must be submitted to The Graduate College by February 15.

5. Graduate Assistantships of approximately $2,900 per year are provided in many of the departments offering graduate programs. Inquiries for Assistantships should be sent directly to the department in which the student plans to concentrate his study. The amount of professional service required of graduate assistants varies among departments, usually ranging from fifteen to twenty hours per week.

OTHER FINANCIAL ASSISTANCE

I. Federal Financial Aid Programs: Western Michigan University participates in various Federally funded financial aid programs to assist students who demonstrate the required criteria. The criteria are set by the Office of Education and are subject to periodic revision.

a. College Work-Study Program (C W-S): This provides work opportunities for students who are in great need of financial assistance to attend or to continue in college. Ordinarily they work up to 15 hours per week while attending school and up to 40 hours per week during vacation periods.

b. National Direct Student Loans (NDSL): Through this program, formerly National Defense Student Loan, loans are available to graduate students who have demonstrated a financial need. A full-time graduate student may borrow up to $10,000, including loans received as an undergraduate. The actual amount borrowed may not exceed the student’s demonstrated need. The interest rate of 3% and repayments start nine months after leaving college. The minimum monthly repayment is $30. Part or all of the loan is forgiven for those teaching in specified areas; under stated provisions partial cancellation is also provided for military service. Repayment may be deferred up to three years while in service in the Armed Forces, or as a volunteer in the Peace Corps or VISTA.

c. Federally Insured Student Loan (GSL): The Federal government guarantees loans made by private lending institutions (bank, savings and loan, credit unions) to graduate students up to a maximum of $2,500 per year. The agency within each state which administers this program may at its discretion lower this maximum; in Michigan the limit is $1,500. Graduates may borrow up to $10,000 including undergraduate loans. These loans bear a 7 percent simple interest rate which is waived for the student while attending college and nine months after leaving school on that portion of the loan which is equal to the student’s need; the latter is the difference between the educational costs and the student’s resources including any expected family contribution to be determined by criteria established by the U.S. Office of Education. The student should apply directly to his local lending institution which participates in this program. The names of participating institutions can be obtained from your
General Policies and Procedures

high school principal or counselor or for those in Michigan at WMU’s Office of Student Financial Aid.

d. Law Enforcement Education Program (LEEP): This federal program was established in 1969 to encourage persons interested or engaged in law enforcement to pursue studies in higher education beneficial to them in this profession. Law enforcement involves “all activities pertaining to crime prevention or reduction and enforcement of the criminal law.”

Grants up to $300 per semester are available for full-time or part-time graduate students who are full-time employees of publicly funded law enforcement agencies.

Loans up to $900 per semester are available for full-time graduate students enrolled in the “ Corrections Program,” offered by the School of Social Work. Loan recipients must be employed in or intend to enter, the “law enforcement” profession.

For information on eligibility requirements and where to apply, contact the Office of Student Financial Aid, Room 3306, Student Services Building.

2. Non-Federal Financial Aid Programs:

a. United Student Aid Fund: Students unable to qualify for a National Direct Student Loan and unable to obtain a federally guaranteed student loan may apply to his local lending institution which participates in this program. The names of participating institutions can be obtained from the United Student Aid Funds, Inc., 5259 North Tacoma Avenue, Indianapolis, Indiana 46220. The loan is not to exceed $1,500 per academic year for an undergraduate or graduate student.

b. Monthly Education Payment Plans: Western Michigan University has approved a monthly payment program which provides parents with the opportunity to borrow from $500 up to a maximum of the entire educational expense of their son or daughter. Inquiries concerning this program should be directed to the following addresses:

   College Aid Plan, Inc.          The Tuition Plan
   1008 Elm Street                Concord, New Hampshire 03301
   Manchester, New Hampshire 03101

c. Short Term Loans and Employment Opportunities: For information on the 87 short term loan funds, most of which are available for full-time graduate students to meet educational expenses, as well as employment opportunities both on and off campus, contact the Office of Student Financial Aid, Room 3306, Student Services Building.

3. Military Science Subsistence Allowance: Students enrolled in the Advanced Course of the Military Science program are eligible to receive $100 a month for up to ten months of each year for two years. Contact the Department of Military Science for further information.
GENERAL POLICIES AND PROCEDURES

STUDENT ACADEMIC RIGHTS

I. Introduction

The University endorses as a guideline for policy the following section from the Joint Statement on Rights and Freedoms of Students.

A. In the Classroom

The professor in the classroom and in conference should encourage full discussion, inquiry and expression. Student performance should be evaluated solely on an academic basis, not on opinions or conduct in matters unrelated to academic standards.

B. Protection Against Improper Academic Evaluation

Students should have protection through orderly procedures against prejudiced or capricious academic evaluation. At the same time they are responsible for maintaining standards of academic performances established for each course in which they are enrolled.

C. Protection of Freedom of Expression

Students should be free to take reasoned exception to the data or views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.

II. Policies and Procedures

A. Students should be fully informed by the faculty about course requirements, evaluating procedures and academic criteria to be used in each class. This information should be provided at the beginning of the semester or sufficiently in advance of actual evaluation.

B. Procedures for Reviewing Student Grievances Related to Grading

(1) Students have the right to have all their examinations and other written graded material made available to them with an explanation of the grading criteria. Faculty should retain all such material [not returned to the student] for at least one full semester after the course was given. Faculty are not required to return such material to the student but must provide reasonable access to it.

(2) Whenever a student believes he has a grievance regarding a grade, he should first arrange a meeting with his instructor who may be able to explain the reasons for the grade or recommend a change if warranted.

(3) If the student believes that he has not received a satisfactory resolution of his grievance from the instructor, he should then go to the department chairman or head, who may effect a satisfactory resolution through his good offices.

(4) If the student is still dissatisfied after seeing the department chairman or head, the student should next see the University Ombudsman. The function of the ombudsman in this situation would be to collect informa-
tion from both the student and the faculty member and then to make a
decision that (a) the student's grievance is unwarranted, and should not
be considered further, or (b) there is sufficient evidence that the situation
be considered by the Graduate Committee on Academic Fairness.

(5) The Graduate Committee on Academic Fairness consists of three facul-
ty and three graduate students.

(6) When a case is presented to the Committee, the Committee shall in-
vestigate it, making sure that all interested parties have a full opportu-
nity to present their position. The Committee will be able to recommend
(a) no grade change, (b) a change of letter grade, (c) pass or fail or credit
or no credit, or (d) any other grade used by the Records Office.

(7) If the Committee decides that there should be no change of grade they
will so inform the student, the faculty member, the department chairman
or head and the ombudsman. If the Committee decides to recommend a
change of grade, the Committee will first inform the faculty member of
its intent so that he may initiate the change himself. If the faculty
member prefers not to initiate the change, the Committee will do so by
notifying the Dean of Records and Admissions.

(8) To protect all parties involved in any case, the strictest privacy con-
sistent with the Committee's task will be maintained.

(9) Occasions do occur when a faculty or an administrative official may
wish to question a grade or a grade change. In such instances, these
procedures, beginning with review by the ombudsman, shall be available
to them.

C. Policies and Procedures Regarding Requirements

(1) All students who seek advice on academic requirements will be pro-
vided written copies of their academic advisors' recommendations and
students will not be held responsible for errors made by their advisers.
This section is not to be interpreted to mean that the student is relieved
of the responsibility of meeting the total graduation requirements stated
in the Catalog in force at the time he was admitted, or in a later catalog
if he chooses to meet its graduation requirements.

(2) The student shall not be held responsible for meeting curricular re-
quirements that are not listed or not applicable under the catalog governing
the work he is taking.

(3) Every department shall provide systematic procedures for students to
express their views on matters of program and curriculum.

(4) University policy and implementation of such policy should not be
determined and enforced according to the needs of computer program-
ning of records. Special care should be taken to insure that no individual
is treated unfairly because of computer problems.

(5) The University Ombudsman will have the authority to investigate com-
plaints and recommend or negotiate fair solutions on behalf of the
student.
UNIVERSITY OMBUDSMAN

The position of University Ombudsman was created to investigate and mediate grievances and to provide justice for all members of the University community. Simple and rapid procedures have been established for the hearing of requests, complaints and grievances. The Ombudsman investigates such matters and, where he discovers a malfunction in the administrative process or an abuse of power, he assists the individual in accomplishing a quick and fair resolution of his problem. He can remedy some problems by himself, but when appropriate, he refers persons to other University members and/or offices. The Ombudsman is authorized to make thorough investigations and has direct and prompt access to all University offices and relevant records. He is alert especially to the chief causes for student concerns, and makes recommendations for the elimination of these causes consistent with the fundamental purpose of the University.

UNIVERSITY LIBRARIES

The University Libraries consist of the Main Library (Dwight B. Waldo Library) and four branches: the Business Library, the Music Library, the Physical Sciences Library and the Educational Resources Center Library. The University Libraries are organized and maintained for the purpose of providing materials and services necessary to the instruction and research carried on at the University. The collection numbers over 900,000 items including books, bound periodicals, music scores, recordings, maps, documents and materials in microform. Over 10,000 periodicals and serials and 100 newspapers are currently received. The Library system is a depository for Michigan and United States government documents, and receives the micropoint edition of the United Nations documents as well as monographs and reports of the major associated organizations.

The main collection is housed in the Dwight B. Waldo Library which is named for the second President of the University. Built in 1959, it was enlarged in 1967 to almost double its original size. Also housed in Waldo are the School of Librarianship, the University Archives, and the Film Library and Audio-Visual Equipment Services.

Through the use of various approval and gathering plans as a part of the acquisitions program, the Libraries place an emphasis on building strong collections of current imprints in the fields of study at the University.

Special collections include:

1. The Ann Kercher Memorial Collection on Africa is an extensive collection of materials on Africa south of the Sahara. Started a decade ago, it has grown rapidly to become a noteworthy addition to the University holdings.

2. The South Asia Collection is another area of unusual strength. Together with the African collection it represents the University’s strong commitment to area studies.

3. The Randall Frazier Memorial Collection, honoring a notable alumnus, has a wealth of material on the history and culture of Black America.

4. The Regional History Collection is a unique group of items on the thirteen
southwest counties of Michigan. In addition to books, this collection contains many manuscripts of early residents of this area.

5. Another area of strength is Medieval Studies, involving history, religion, philosophy and culture of the medieval period.

6. The C. C. Adams Ecological Collection consists of the personal collection and papers of the pioneer American ecologist, Charles C. Adams.

7. A microform collection of over 200,000 contains such items as the Human Relations Area File, American Periodical Series, Early American Newspapers of the 18th and 19th centuries, Early English Books, 1475–1640, back issues of the New York Times and the London Times, a current awareness service in the area of urban affairs (Urban Affairs Data Bank), etc.

The Business Library, located in North Hall, has a collection of some 23,000 books, supplemented by special microform collections, and currently subscribes to 500 periodicals and newspapers.

The Music Library is on the second floor of Maybee Music Hall. In addition to a book collection of some 10,000 volumes and 75 periodical subscriptions, this branch contains a collection of 6,000 phonograph records and extensive listening facilities.

The Physical Sciences Library contains some 17,000 volumes in the fields of Mathematics, Astronomy, Physics and Geology. This branch is located on the third floor of Rood Hall.

The Educational Resources Center Library in Sangren Hall comprises some 67,000 volumes and receives 300 periodical titles. The Center is a cooperative venture between the University Libraries and the College of Education, combining the best of library and audiovisual facilities and practices into a single center for the improvement of instruction and learning.

Holdings in all of the University Libraries are recorded in the public card catalog in the Main (Waldo) Library; each branch maintains a special card catalog of its own holdings.

The Libraries also provide library service to students enrolled in off campus classes through the libraries at the Continuing Education Centers in Benton Harbor, Grand Rapids, and Muskegon.

Research materials which are not in our collections and are not available or not suitable for purchase can often be secured through interlibrary loan. Requests for loans may be initiated at public service desks in our libraries.

The University Libraries hold membership in the Center for Research Libraries, a three and a half million volume collection located in Chicago. The Center operates as a cooperative library for less-used but important research materials such as Asian trade statistics, domestic and foreign newspapers, microfilm copies of French books published before 1601, corporation and insurance company reports, foreign dissertations, etc. Loan copies of the Center’s Handbook, describing the contents of the collection are available in our Interlibrary Loan Center and from our Acquisitions Department.

References collections of indexes, abstracts, dictionaries, handbooks, bibliographies, etc. are maintained throughout the University Libraries, and reference librarians offer assistance in finding the books, information, and other resources you may need for class or research related problems.

Self-service, coin-operated photocopy machines are located throughout the
library system, and a staffed copy service is provided at the Waldo Circulation Desk. Microform copiers are available at the Waldo Circulation Desk, and at the Business Library and the Educational Resources Center Library.

Graduate students engaged in projects requiring extensive use of library resources may apply in writing to the Circulation Office of Waldo Library for assignment of a locked carrel in the Waldo Library. Assignments are made for no longer than one semester on a first come, first served basis. Application forms are available at the Waldo Circulation Desk.

HOUSING

Married Student Housing: The University provides 590 apartments for use by married students attending school on a full-time basis. Both one- and two-bedroom styles are available, in either a furnished or unfurnished condition. The rental fee varies, depending on location and apartment style. Regardless of style, the fee includes all utilities (except telephone), parking privileges for one vehicle, and a minor maintenance service. Laundry facilities are conveniently placed throughout the apartment areas. For further information and application form, write: Manager, Married Student Apartments, Student Services Building, Western Michigan University.

On-Campus Housing: There are 21 residence halls on campus, including Walwood Hall, which has been set aside for 114 single students, both male and female, who are 21 or older. Requests for on-campus housing should be directed to the Manager of Residence Halls, Student Services Building, Western Michigan University.

VETERANS' ASSISTANCE

Answers to questions pertaining to veterans' educational assistance may be obtained at the Academic Records Office, Room 3210, Administration Building. The telephone number is 383-1630.

The main areas of assistance are: veterans' educational benefits, war orphan and war widow educational benefits, vocational rehabilitation benefits, and flight training benefits. Veterans should not hesitate to contact the Academic Records Office for the proper procedure that initiates G.I. benefits and regarding any difficulty receiving their G.I. benefits.

Veterans who change their place of education, enrollments, and current mailing addresses should contact this office. Proof of a change in dependents should be sent directly to the V.A. Regional Office in Detroit. The current mailing address can be obtained at the Academic Records Office.

HEALTH SERVICE

The University Health Center provides medical service and limited surgical care and psychiatric evaluation that may be needed by students. Regardless of
classification. Students enrolled for seven hours or more in a semester or four hours or more in a session are assessed no fee for outpatient clinic visits. Students carrying from one to six hours in a semester or one to three hours in a session are charged a minimum fee for each clinic call. Spouses of students eligible for service are seen by appointment and on a fee basis. The Center is not equipped to see pediatrics. Charges are made by the Health Center for medication, reductions and casting of fractures, minor surgery and other special medical services such as administration of allergy vaccine provided and scheduled by a family physician.

Graduate students who intend to use the Health Center while at the University must have a physical examination report on file at the Center. If no physical examination is on file, the usual customary fee for an office call will be charged until the physical examination is on file. If a student has an illness which may require further treatment while attending the University, such information should accompany the physical examination report in a letter from the family physician. A student who is receiving allergy injections may have his vaccine stored at the Health Center and may have the vaccine administered by a nurse and can be given only when a doctor is in attendance.

The Health Center is open twenty-four hours a day, seven days a week, during the fall and winter semesters and the spring session, and from 8:00 a.m. to 4:30 p.m., Monday through Friday, during the summer session. Clinics are scheduled daily from 8:00 a.m. to 4:30 p.m. Monday through Friday, and on Saturday from 9:00 a.m. to 12:00 noon during periods when classes are in session. The Saturday clinics are limited to emergent or urgent cases. A service fee is charged for students requesting service between the hours of 5:00 p.m. and 8:00 a.m., after 12:00 noon on Saturday and before 8:00 a.m. on Monday. In cases of sudden illness or serious accident at hours the clinics are not scheduled, a student patient may be taken to the Health Center or to an emergency room of a local hospital. The decision must be made on the basis of the seriousness of the medical problem and an understanding that a physician, although on duty and subject to call, is not at the Health Center during non-clinic hours. The Bronson Hospital emergency room is staffed by physicians at all times. If an emergency case is taken to the Health Center during non-clinic hours, the nurse on duty must make a professional judgment to confer with the physician on call, refer the patient to a hospital emergency room or arrange for temporary care pending a physician’s examination later.

Students who require medical care and laboratory examinations which cannot be performed at the Health Center will be referred to a local hospital. When a student is transferred to a local hospital the nearest relative will be notified as early as possible. No operative procedures will be performed on students under the age of eighteen, without permission of the parents, except in cases of extreme emergency of life-threatening situations. Costs related to hospitalization, including fees of consulting physicians who are not directly employed by the University are the responsibility of the student or parents. It shall not be the responsibility of the University to pay for such hospitalization or consultation.

To cover some of the medical expenses which may be incurred, it is strongly recommended that domestic students carry a health and accident insurance policy. Most parents have such coverage; however, it is advisable to review the provisions of the policy regarding dependents’ ages and college attendance. A group health and accident policy is offered to students through the University at a modest premium and may be applied when a student is admitted to the University.

Parents of foreign students may have an insurance policy which provides benefits to a son or daughter but such policies frequently provide benefits only when an illness or accident occurs in the family’s country. Citizens of other nations who are studying or conducting research as foreign students on a temporary U.S. visa.
Graduate students and alumni of Western Michigan University who desire assistance in making initial career choices, who desire to upgrade themselves in their present occupation, or who may wish to investigate a different line of work are invited to talk over any of these possibilities with a trained counselor in the Career Planning and Placement Office. An extensive library of occupational information in hundreds of fields is also available.

Placement Services are available to any senior student who expects to receive a degree from Western, any graduate student who may not have completed the baccalaureate degree here, but has completed eight semester hours of graduate credit toward an advanced degree at Western, or any alumnus who has received any degree from Western.

Active placement service requires that the candidate keep an updated credential file, and includes services such as employment opportunities bulletin mailings to candidates, together with personal recommendations to employers by professional staff members. Opportunities are also offered to active candidates to interview employers who recruit on our campus. There are no fees or charges to register for these services.

The services of the Counseling Center are offered to all graduate students, their spouses and their children. The services include assistance in selecting an area of study, vocational-educational planning, personal counseling, group counseling, and workshops for the elimination of self-defeating behavior. Confidentiality is considered paramount. Reading material is available in the Counseling Center occupational information library concerning various aspects of employment, occupations and qualifications.

The services of the Testing Center are open to all graduate students and their families. Interest Inventories, Aptitude Test Batteries, Personality Measurements and Achievement Tests are available. All these different instruments are adminis-
Testing Services has the largest file of tests in Southwestern Michigan. These files are available to students for their various projects at no cost to the student. Staff members are available to the student for planning on research projects and data collection. The IBM forms that are used by faculty members for their research projects are free to students and the processing of the sheets is also free.

FOREIGN STUDENT AFFAIRS

The Office of Foreign Student Affairs (OFSA) was established at Western to meet and deal with the special needs and circumstances of foreign students. The OFSA processes the applications for admission of all foreign students, conducts an orientation program for new students prior to each enrollment period, assists with housing arrangements, coordinates community programs involving foreign students, provides advisement on matters related to each student’s immigration status, serves as a liaison between the student and his sponsor and offers personal and social counseling on a wide variety of concerns.

Any foreign student interested in seeking admission to Western should request an application and instructions from the Office of Foreign Student Affairs, Student Services Building, Western Michigan University, Kalamazoo, Michigan 49001.

MOTOR VEHICLE REGISTRATION

All motor vehicles possessed, parked or used on campus by eligible faculty, staff and students must be registered with the University.

Drivers must obtain application forms from the Office of Safety and Security and pay the appropriate registration fee to the University Business Office.

Vehicles of all eligible persons must be registered within 72 hours after the beginning of classes. After this time vehicles must not be possessed, parked or used on campus until registration is complete.
SECTION II

Master's Degree Programs and Requirements

Each degree candidate must choose a graduate program that is compatible with his objectives. The programs listed on the following pages have been developed to provide students with the basic experiences that implement these objectives. The programs are, however, sufficiently flexible to allow for the differing needs of individual students.

Through the counseling process, graduate advisers will help the students choose courses to meet their individual needs. Courses and experiences should be chosen so that the graduate student becomes a person with greater professional skill, increased ability to analyze and interpret life situations, and greater insight into problems involved in professional leadership.

GENERAL REQUIREMENTS FOR A MASTER'S DEGREE

1. Admission – (See Calendar of Events for application deadline.)
   a. Bachelor's degree, indicated on an official transcript.
   b. Transcripts of all courses taken beyond high school.
   c. A point hour ratio of at least 2.6 (A = 4) in the credits completed in the last two years of undergraduate work.
   d. Attainment of a satisfactory score on the English Qualifying Examination. A non-credit English course must be passed by students failing this examination.
   e. Acceptance by both The Graduate College and a unit for a definite program of study.

2. Candidacy
   a. A permanent program which will constitute an application for admission to candidacy must be submitted to The Graduate College during the first semester or session of enrollment.
   b. Reservations indicated on the program and the certificate of admission must be removed before candidacy will be approved.
   c. A point-hour ratio of at least 3.0 (A = 4) must be secured in all courses taken on campus. A 3.0 overall average is also required. Honor point deficiencies acquired in on-campus credits cannot be made up by credits earned at another university or by extension.
3. Graduation—(See Calendar of Events for application deadline.)

a. Diploma Application

A diploma application must be submitted no later than three months prior to Commencement. Three Commencements are held per year: April, August, and December.

b. Minimum Credit Hours

Completion of a minimum of 30 hours of accepted credit in a program of study approved by an adviser. Normally, only courses numbered 500 and above are acceptable. One-half of the credits earned must be in courses numbered 600 or above.

c. Residence Credit

Completion of a minimum of one full session (5 semester hours minimum) or one semester (9 semester hours minimum or its equivalent) of residence on campus is required. Students who are employed in the same position on a twelve-month basis may register for four consecutive semesters of work on campus in lieu of the 5 or 9 hour requirement. Of the total of 30 semester hours, a minimum of 18 hours must be taken on the campus of Western Michigan University except for those students who study in an approved residence center of Western Michigan University in Benton Harbor, Muskegon or Grand Rapids. Such students may offer a maximum of 20 hours of off-campus work. Work transferred from other institutions must be included within the 12 hours maximum off-campus work permitted or in the case of the student studying in a residence within the 20 hours of off-campus work permitted.

d. Point-hour Ratio

A point-hour ratio of 3.0 (A = 4) is required for courses taken on campus as well as an overall 3.0. To maintain a B average each hour of C must be offset by an hour of A and each hour of E must be offset by three hours of A. A grade of Incomplete will show on the student’s Permanent Record as “1” unless completed within one calendar year. This ruling does not apply to the course, Thesis 700.

e. Hours After Candidacy

The election and completion of at least six hours is required after being approved for Candidacy.

f. Transfer Credit

Six semester hours (3 quarter or term hours are equivalent to 2 semester hours) of graduate credit may be transferred from other schools provided:

1) The credits were earned in institutions accredited for graduate study and are of B grade or better. The student’s average for all graduate work taken at another institution must also be B or better.

2) The Graduate College approves the credits for transfer.

3) The student’s adviser verifies that the credits contribute to the student’s program of study.

g. Time Limit

All work accepted for the degree program must be elected within six years preceding the date on which the graduate degree is conferred.
When a student wishes to secure a second Master’s degree he may include a maximum of ten credits from his first graduate degree program. The second degree program must meet the other usual requirements for a Master’s degree, except the English Qualifying Examination.

**GENERAL REQUIREMENTS FOR A SECOND MASTER’S DEGREE**

When a student wishes to secure a second Master’s degree he may include a maximum of ten credits from his first graduate degree program. The second degree program must meet the other usual requirements for a Master’s degree, except the English Qualifying Examination.

**PROGRAMS LEADING TO THE MASTER’S DEGREE**

**Accountancy**

The Master of Science in Accountancy degree program allows the student an opportunity to concentrate in Accountancy at the graduate level. A student with no academic credits in business or accountancy could complete the prerequisite and graduate program in one and one-half calendar years of full time study. The program meets the educational requirements of the Michigan State Board of Accountancy to qualify for the C.P.A. examination.

Knowledge and understanding of the theory, literature, controversial concepts and professional practice of accounting is developed. The student’s understanding of the relationship of accounting to other fields in business and to other disciplines is also stressed.

Specific requirements for the M.S. degree are a minimum of 30 semester hours of graduate work. At least 21 graduate credits must be earned in work numbered 600 or above. It is expected that a minimum of 21 semester hours of the total degree requirements will be in accounting. However, in special cases, a closely related course offered by another department may be substituted as part of the program. In addition to the Accountancy major requirements, the student must complete a minor of six to nine credits outside of the Department of Accountancy. Admission requirements, program prerequisites and residence requirements are the same as for the MBA program (see Business).

**Anthropology**

The Master of Arts degree program in Anthropology is intended to provide the student with a sound understanding of the discipline as a whole. In addition it
Mastera Degree Programs

requires a concentration, appropriate to its academic level, upon one of the major branches of Anthropology. These may be identified as archeology, ethnology (cultural anthropology), and physical anthropology. Research experience in archeological and ethnographic field schools is available.

Admission Requirements

1. Students should have completed a minimum of fifteen semester hours in undergraduate work in Anthropology, or twenty-four hours in Anthropology and related disciplines, such as Geology, Zoology, and the Social Sciences, of which at least nine hours must be in Anthropology.

2. Accumulation of a point-hour ratio of at least 3.0 during the final two years of undergraduate work.

3. Students are required to have completed at least three semester hours of statistics. This requirement can be satisfied by the student's undergraduate program.

4. If these requirements have not been met on the undergraduate level, the student may be admitted with the understanding that additional course work as specified by the department will be required to provide the necessary background.

5. Three letters of recommendation are required from persons able to assess the applicant's academic record, potential for success in a Master of Arts degree program in Anthropology, and suitability for an assistantship in this discipline. These letters should be submitted directly to the graduate adviser.

Program Requirements

1. Complete at least thirty semester hours, selected in consultation with the graduate adviser. At least twenty of the hours must be in Anthropology. The remainder may be in Anthropology or in related disciplines as determined by the needs of the student. Six of the hours will be earned with the Master's Thesis.

2. Anthropology 601, 602, and 603, or their equivalents, are required.

3. Complete an acceptable Master's Thesis (6 hrs.).

4. Pass a comprehensive written examination on the field of Anthropology.

Art

T. D. Argyropoulos, Adviser

MASTER OF ARTS IN ART

The Master of Arts degree program in Art has two possible emphases: art education and art practice. Students concerned with advanced study in both art practice and art education, essentially for furthering their skills as public school or junior college teachers, should elect an emphasis in art education. Those wishing advanced training in art practice for professional reasons, or as preparation for MFA terminal programs in art at other universities, should elect the emphasis in art practice.
Master's Degree Programs

Since admission to the program involves a portfolio examination of the work of each applicant by a six man board representing all major departmental areas, and because programs must be integrated with departmental offerings for each particular year, it is not possible to consider admissions during Spring and Summer sessions. Applicants are urged to make application before October for Winter enrollment, and before March for Spring, Summer or Fall enrollment.

Admission requirements:

1. A BA or BFA in art, or its equivalent.
2. A 3.0 (B) point-hour ratio in art work taken during the last two undergraduate years, or their equivalent.
3. A portfolio, or slides, or art work must be submitted for review along with the appropriate admission request papers.
4. A statement of intent indicating the area of emphasis a student would elect, and his twelve hour area of concentration is required with the portfolio. The identification of a faculty member with whom a student would like to work is helpful.

Program requirements for the MA in Art:

1. Twelve hours of art courses from one of the following areas: painting, sculpture, printmaking, jewelry, graphic design, textile design, multi-media, ceramics.
2. Six hours in advanced art history.
3. Two hours in the graduate seminar in art and two hours in ART 613, Graduating Presentation.
4. A review of work by a Master’s degree committee before the end of the first semester.

Additional requirements for the two emphases are:

   Emphasis in art education (Minimum total hours of credit – 36):
   1. Nine hours in advanced art education courses.
   2. Seven hours in art practice areas apart from those selected above, or in approved cognates.
   3. A final paper or thesis.

   Emphasis in art practice (Minimum total hours of credit – 30):
   1. Seven hours in art practice areas apart from the above selected areas, or in art history.
   2. Three hours in approved cognates.

MASTER OF FINE ARTS

The Master of Fine Arts is the recommended terminal degree for practicing artists and for university art professors. The College Art Association of America, the Mid-America College Art Association and the National Association of Schools
of Art have endorsed this degree for that purpose. The Art Department has membership in all of these organizations and meets or exceeds their standards. The difference between the MA and the MFA is substantially a matter of an additional year's study, and, sometimes, exposure to teaching experience at the college level. Since its emphasis is somewhat different from the MA, it is expected students would enter it directly from the BFA or BA, and not pursue the MA as an intermediate step.

Admission requirements for the MFA are the same as those listed for the MA in Art.

Program requirements for the MFA:

1. Twenty-four hours of art courses from one of the following major areas: painting, sculpture, textile design, jewelry, graphic design, ceramics, printmaking, multi-media art.
2. Nine hours in art electives or art history.
3. Nine hours in art history.
4. Two hours in the graduate seminar in Art, three hours in ART 610, Advanced Drawing, and two hours in ART 613, Graduating Presentation.
5. Six hours in courses outside the Art Department.
6. A review of work by a Master's committee before the end of the first and third semesters.
7. Five hours in free electives, in or out of Art.
8. Minimum of one year residence on campus.

Biology

Clarence J. Goodnight, Chairman of Advisers

The Master of Arts degree program in Biology is designed to allow the student to develop abilities to conduct research, analyze, interpret and present data as well as to provide a general background in the field. The degree may be used as a foundation for continued graduate work leading to a doctor's degree at another institution or may be considered terminal. A thesis must be prepared under the supervision of an Advisory Committee and a Major Advisor. The Major Advisor must be a member of the Biology Department and the Graduate Faculty having competence in the area of the student's major interest. Specialization is permitted in most areas of biology but areas of greatest strength are: Environmental Biology, Genetics, Microbiology, Physiology and Plant Biology.

Requirements for admission include at least a course in each of the following areas: botany, zoology (general biology), ecology, genetics and physiology; two semesters of mathematics; chemistry through organic chemistry; two semesters of physics and the Graduate Record Examination (both the General and Advanced sections). A limited number of deficiencies in these areas may be completed after the student has been admitted to the program but before he may be approved for candidacy. Application for admission must be made to the department as well as to The Graduate College.

To satisfy the requirements for the Master's Degree in Biology a student must complete a minimum of thirty hours of graduate work in biology and related areas. The choice of courses will be made by the student and his Advisory Committee.
MASTER OF BUSINESS ADMINISTRATION

The Master of Business Administration degree program is designed to meet the need for well trained generalists and specialists for leadership roles in business, industrial, financial and all levels of governmental organizations. It is a professional degree program which aims to develop in the participants a background and working level of skills, knowledge and attitudes which will prepare them for responsibilities in decision making. The program is so designed that it can meet the professional developmental needs of students with baccalaureate degrees in such areas as liberal arts, sciences, engineering, or other fields as well as those having an undergraduate major in business. Under the guidance of the graduate staff of the College of Business, the participant is provided personal programming in the selection and arrangement of his courses.

Admission requirements: MBA applicants must submit scores for the Admission Test for Graduate Study in Business (ATGSB) prior to consideration for admission to the program.

Program requirements: The MBA degree program requires, in addition to the prerequisites, a minimum of thirty hours of coursework, or twenty-four hours and a Master’s Thesis (6 hrs.), in a program approved by the student’s graduate adviser. The program consists of prerequisites, MBA core courses, and an area of concentration and electives.

1. Prerequisites: These include courses in Accountancy, Economics, Finance, Law, Management, Marketing and Statistics. This requirement may be satisfied by waiver (in case of prior completion of appropriate undergraduate courses, the BBA core courses or the equivalent), by examination, or by taking Administrative Accounting 505 (or Principles of Accounting 210, 211); Principles of Economics 201, 202; Business Finance 320, Legal Environment 340, Management Fundamentals 300, Marketing 370, Statistics 200, and Management Problems 499.


3. MBA Concentration. An area of concentration may be selected from Accountancy, Economics, Finance, General Business, Management or Marketing. Usually this consists of three to five courses in an area (in addition to the MBA core). However, at least fifteen hours of credit must be taken outside the area of concentration.

4. Residence Credit. Residence requirements may be fulfilled by taking one or more courses during four consecutive semesters.

5. On-Campus Requirements. Ten semester hours of coursework must be taken on campus.
MASTER OF SCIENCE IN BUSINESS

The Master of Science program permits the student to specialize in a specific area of business such as Accountancy (See p. 00), Finance, Management or Marketing. The program is designed primarily to permit exceptional students to work on individualized programs, generally in preparation for further academic studies. It is a departmental program and specific admission and course requirements are determined by the department.

Admission requirements: Applicants must submit scores for the Admission Test for Graduate Study in Business (ATGSB) prior to consideration for admission to the program and also meet undergraduate point-hour ratio requirements specified by the departments, which may be higher than The Graduate College’s minimum requirements.

Program requirements:

1. Prerequisites: These include coursework or the equivalent in Accounting, Economics, Finance, Law, Management, Marketing, and Statistics. Additional prerequisites may be specified by the department depending on the particular program (e.g. preparation in mathematics, behavioral sciences, computer programming, etc.).

2. A departmental concentration of a minimum of twenty-one semester hours, including the satisfactory completion of a research methodology course, and a Master’s Thesis or a major research project assigned by the department.

Chemistry

The Master of Arts degree program in Chemistry is planned to provide a broad background in the various fields of chemistry with concentration in one. Entrance requirements include admission to The Graduate College and the attainment of a satisfactory grade in qualifying examinations covering the fields of Analytical, Organic, and Physical Chemistry. These examinations must be taken on the following dates:

- August 23, 1973 – 9:00 a.m. – Analytical; 1:00 p.m. – Organic
- August 24, 1973 – 9:00 a.m. – Physical
- January 2, 1974 – Any
- April 26, 1974 – Any
- June 24, 1974 – Any
- August 29, 1974 – 9:00 a.m. – Analytical; 1:00 p.m. – Organic
- August 30, 1974 – 9:00 a.m. – Physical

Enrollment in a 600-level Chemistry course is not permitted unless the appropriate qualifying examination has been passed. Students who fail a qualifying examination must repeat it at the next regularly scheduled date and must attend the corresponding undergraduate course if available.

The student is required to elect twenty to twenty-four hours in the field of Chemistry, including the Master’s Thesis, and six to ten hours in a related field or fields and to pass a final oral examination administered by the student’s graduate committee. The course sequence will include (if not previously elected):
1. Nine hours of 600-level courses from at least three of the following divisions, including one course in the division of the Master's Thesis: Analytical, Biochemistry, Inorganic, Organic and Physical.

2. CHEM 505, Chemical Literature.

3. CHEM 506, Chemical Laboratory Safety.

4. CHEM 520, Instrumental Methods in Chemistry.

5. CHEM 601, Graduate Seminar. (Attendance required every semester).

6. CHEM 700, Master's Thesis (6 hrs.).

Communication Arts and Sciences

W. Buys, Adviser

The Master of Arts degree in Communication Arts and Sciences is intended either for students wishing a terminal degree or for students intending to continue on in graduate school. Students may take the degree as a generalist or may choose to emphasize a particular area of communication. Present areas for degree specialization include: communication education, mass communication, communication theory, interpersonal communication, theatre, and oral interpretation.

Eligibility for Admission

The primary criteria for admission are based upon answers to the following questions: Does the applicant have a clear understanding of his educational objectives? Can the graduate curriculum and staff provide a satisfactory educational experience for him? Undergraduate records, letters of recommendation, evidence of academic interest and ability, and a personal interview may be requested, depending upon the individual applicant. Undergraduate work in communication, speech or allied disciplines is expected of all applicants. Academic deficiencies or reservations may be determined at the time of application.

Degree Requirements

1. At least thirty hours must be completed in communication and cognate courses. Selection is to be made in consultation with the student's adviser.

2. Consultation must be carried on by the student and his adviser each term the student is enrolled.

3. A Master's Thesis is optional.

Computer Science

Jack R. Meagher, Adviser
A. Bruce Clarke, Department Chairman

The Master's program in Computer Science is offered through the Department of Mathematics. The resulting degree is a Master of Science in Applied Mathematics with concentration in Computer Science.

This M.S. program is a professional program designed to prepare students to take a position in computer organization and systems operation in the research and
development wing of an industrial corporation, or in government service, or in a consulting computer service company. Computer problems connected with actual industrial production and distribution are becoming increasingly complex, and broader training will be required for personnel in these areas too. A subsidiary goal is to prepare faculty members to direct computer operations and computer training in two-year colleges. Graduates will also be well prepared to undertake more advanced graduate training in Computer Science.

For admission to this curriculum, candidates must have completed an undergraduate program containing courses equivalent to Mathematics 223, 333, 506, and 570. If the student’s undergraduate program does not include these courses or their equivalents, he will be required to complete them as an additional program requirement.

Each student must complete an approved program of thirty hours of graduate work including:

1. MATH 507, 530, 571.
2. Twelve hours of computer science courses selected from MATH 508, 606, 607, 680, 681, 682.
3. Nine hours of advanced computer application selected from MATH 608, 609, 562, 662, 712, EET 650, and MGMT 630.

It is the intent of the Department that every graduate of this program, in addition to receiving a strong theoretical grounding, should also have practical experience in computer consultation and computer systems. Every graduate should, of course, be a competent programmer, and should have some intern-type experience. This experience may be obtained as part of a work program, or, more formally, by electing MATH 712, Professional Field Experience, as part of requirement 3 above.

Proficiency and final Master’s examinations will be required following a pattern similar to that for the M.A. program in Mathematics.

Opportunities for financial support of graduate students are offered through the Department of Mathematics in the form of Graduate Assistantships and Fellowships, and through the Computer Center in the form of Computer Assistantships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Department Chairman, or the Program Adviser.

Earth Science (Dept. of Geology)

The Master of Arts degree program in Earth Science is designed to increase a student’s knowledge in the fields of astronomy, geology, meteorology, and oceanography, thereby permitting improved instruction of the comprehensive subject of earth science in secondary schools.

Admission requirements: Students should have completed an undergraduate major in earth science or its equivalent, and one semester each of college chemistry and physics. Deficiencies in undergraduate preparation must be completed before admission to candidacy (see general degree requirements). Students planning to teach in secondary schools should complete certification requirements.
Master's Degree Programs

Program requirements: A minimum of thirty hours is required for the degree including:


2. GEOL 660, Seminar in Earth Science. Participation is required each semester in residence. Each student must make one formal presentation each year.

3. Independent Research (4-6 hours). Topic to be chosen by student with approval of adviser.

4. Thirteen hours of electives in earth science or related disciplines with consent of graduate adviser.

5. An exploratory written examination during the first week of residence and a final comprehensive oral examination. Failure of the final oral comprehensive examination may be followed by a second oral or a written examination.

Economics

Admission requirements: A student should have satisfactorily completed at least twenty-four hours in the social sciences, with a minimum of ten hours in economics, or in equivalents approved by the graduate adviser.

Program requirements for the Master of Arts degree in Economics:

1. The satisfactory completion of either thirty hours including the Master's Thesis (6 hrs.) or thirty-three hours, if additional courses are submitted in lieu of the thesis, in a planned program made in consultation with the graduate adviser.

2. ECON 603, Advanced Price Theory and ECON 662, National Income Analysis are required.

3. Pass written and oral comprehensive examinations.

Education

The degree of Master of Arts in the field of Education is awarded in the following general categories: 1) Educational Leadership, 2) Counseling and Personnel Services, 3) Curricula in Teaching, 4) Teaching the Economically and Educationally Disadvantaged, 5) Teaching of Reading, 6) Teaching in the Community College, 7) Special Education, 8) Audiovisual Media, and 9) Blind Rehabilitation.

The programs in Teaching in the Community College, Teaching the Economically and Educationally Disadvantaged, Teaching of Reading, and Audiovisual Media are offered by the Department of Teacher Education in collaboration with a number of departments in the Colleges of Applied Sciences, Arts and Sciences, Business and Education.
These curricula are planned to provide professional preparation for students who are interested in teaching, administration, and certain specialized positions in elementary and secondary schools and junior colleges. With the exceptions noted below students applying for candidacy in the curricula of the College of Education are expected to have completed a minimum of fifteen hours of undergraduate work in professional education. In some instances, students may present equivalent preparation which meets the minimum requirements for teacher certification, when such preparation is approved by the College of Education.

The exceptions are:
1. The fifteen hours of undergraduate preparation in professional education is not required of those interested in leadership positions in higher education and those who enter the Program Leadership curriculum in the Department of Educational Leadership.
2. The fifteen hours of undergraduate preparation in professional education is not required in the Counseling & Personnel Services curriculum chosen by individuals interested in the ministry, business counseling, and counseling positions and social services occupations.

CURRICULA PROVIDED BY THE DEPARTMENT OF BLIND REHABILITATION

Western Michigan University, in cooperation with the Social and Rehabilitation Services, Department of Health, Education, and Welfare, offers two graduate programs in challenging careers in the emerging field of Blind Rehabilitation. All applicants must have completed their Bachelor’s degree at an accredited college or university, with a major in the behavioral sciences.

The students will be selected on the basis of demonstrated mature judgment, emotional and social maturity, adaptability and resourcefulness and leadership potentials. They should have a strong and sincere desire to work with all types of people, usually on an individual basis. A personal interview will be required of all applicants.

All Orientation and Mobility students must have no less than 20/40 visual acuity in the best eye with best possible correction and a minimum of 140° contiguous field (measured concurrently) with best correction. This visual requirement is not applicable to Rehabilitation Teachers.

Students are admitted into the programs at the beginning of the Fall, Winter and Spring terms.

Orientation and Mobility

Advisers: Donald Blasch, Stanley Suterko

The purpose of an orientation and mobility specialist is to teach visually impaired persons to move about effectively, efficiently and safely in familiar and unfamiliar environments. An essential part of the re-education of a blind person is the training in more effective use of those senses which are still intact.

The training program for the mobility specialist requires twelve months of study and activity. The first two semesters are spent in residence at Western Michigan University in academic study, together with elementary and intermediate training in orientation and mobility. The later will be accomplished on an individual basis. The third semester of professional preparation will be offered through an internship in an accredited agency or school off campus. The successful completion of thirty-six semester hours is required to earn the degree of Master of Arts.
Rehabilitation Teaching
Advisers: Ruth Kaarlela, Donald Blasch

The rehabilitation teacher assists the blind adult to learn to live without the use of sight, but offering instruction in the basic skills of living, such as communication, personal management, homemaking, minor household repairs, and leisure time activities. This instruction is provided through the sponsorship of public or private agencies for the blind, and rehabilitation centers. The rehabilitation teacher works with individuals, or with very small groups.

The 36-42 hour program for preparation of rehabilitation teachers extends over a period of twelve to sixteen months. The course is divided between academic study on campus and practice in an accredited agency, where, under close supervision, the student has an opportunity for directed teaching experience.

CURRICULA PROVIDED BY THE DEPARTMENT OF COUNSELING AND PERSONNEL


The Master of Arts degree program in Counseling and Personnel is designed to prepare individuals for positions in counseling and personnel work in both educational and non-educational settings. Four areas of concentration are offered: 1) counseling in schools. Kindergarten through 12th grade, 2) counseling in community and agency settings, 3) counseling in colleges and universities, and 4) student personnel administration. While the inter-relatedness of these program areas necessitates a common core of courses, there is sufficient uniqueness in the expected competencies to require some differentiation of courses and experiences.

Following acceptance by The Graduate College, the Department of Counseling and Personnel accepts people based upon an undergraduate point hour ratio and satisfactory scores on the department screening battery of tests. Interviews and letters of recommendation may also be required. Each student is assigned an adviser who will assist in constructing a degree program consistent with the student’s vocational goal and educational background. Program development must be completed no later than the first semester or session of his enrollment.

The curriculum in Counseling and Personnel requires the following:

1. Six hours of core courses in Teacher Education including Introduction to Research in Education 601.

2. A minimum of six hours of cognate courses in areas such as: sociology, psychology, economics and vocational education depending upon educational background, vocational experiences and career objectives.

3. Twenty-three hours in one of the four areas of concentration:

   C-P 600. Interpersonal Communications Skills Laboratory. 1 hr.;
   C-P 610. Organization of Pupil Personnel Services. 3 hrs.
   or
   C-P 611. Introduction to Community and Agency Counseling. 3 hrs.
   or
   C-P 612. Student Personnel Services in Higher Education. 3 hrs.;
C-P 615. Introduction to Career Development. 3 hrs.;
C-P 617. Introduction to Theories of Counseling. 2 hrs.;
C-P 618. Counseling Techniques. 2 hrs.;
C-P 619. Tests, Measurements and Appraisal. 4 hrs.;
C-P 628. Practicum & Professional Experience. Counseling in Schools or Counseling in Higher Education or Counseling in Agencies, or Student Personnel Services. 4 hrs.;
C-P 629. Professional Seminar. Counseling in Schools or Higher Education Counseling and Personnel Administration or Counseling in Agencies. 2 hrs.;
C-P 687. Group Procedures in Education. 2 hrs.
C-P 584. Elementary School Guidance (required for elementary school counseling for a total of twenty-five hours)

The student’s progress through the M.A. curriculum will be continuously evaluated. This process includes candidacy (after ten hours of course work), review of student’s status in the event less than a “B” is received in any of the courses within the department and final evaluation prior to graduation.

CURRICULA PROVIDED BY THE DEPARTMENT OF EDUCATIONAL LEADERSHIP

Advisers: Harold W. Boles, James A. Davenport, Dorothy McCuskey, Gerald C. Martin, Ted Ploughman, Rodney W. Roth, William P. Viall, Charles C. Warfield, Donald C. Weaver

The degree of Master of Arts is awarded in curricula intended to prepare personnel for positions as educational leaders; positions that are largely non-instructional in nature. In view of the fact that a student who earns this degree may wish later to work towards a further degree, a student who selects a M.A. curriculum should consider the requirements of the advanced degree in making this selection.

Each student will be assigned an adviser when he has applied to and been notified by The Graduate College of acceptance in a degree program. The adviser will be selected in terms of the student’s professional interests, and will work with him in outlining an individualized and multi-disciplinary program of studies for him to pursue, constituted from departmental and other offerings in these focal areas:

| 8th-13 hrs. | in Administration and Supervision |
| 8th-11 hrs. | in Human Relations |
| 6th-9th hrs. | in Concept Formation |
| At least 3 hrs. | in Research |
| 0th-3 hrs. | in Independent Study |
| 30 hrs. | minimum Total |

At least nine hours of the thirty hour minimum must be outside the College of Education.

*Because of the different emphasis, the program for a Director of Curriculum may have a minimum of hrs. in each of the Administration and Supervision and Human Relations areas and a maximum of 15 hrs. in Concept Formation.*
Master's Degree Programs

Curricula available within this degree program include:

*Line Administration*—intended to prepare person for a position as a principal of a primary, elementary, middle, junior high, or senior high school, or a manager or director of a proprietary school.

*Staff Administration*—intended to prepare a person for a position as a coordinator, director, or supervisor of Business Affairs, Finance, Personnel, Curriculum, a special program such as Community School or Special Education, or a special service such as purchasing in public or private schools.

*Program Leadership*—intended to prepare a person for a position as a Director of Training and/or Management Development in higher education, the armed forces, business, government, industry, a professional association, or a trade union; or as a director or coordinator of educational programs in a social welfare agency.

**CURRICULA PROVIDED BY THE DEPARTMENT OF SPECIAL EDUCATION**

*Advisers:* Emotionally Disturbed—Robert Howell, Abraham Nicolaou; Mentally Handicapped—Lawrence Ashbaugh, Alonzo Hannaford, Elizabeth Lawrence, Donald Sellin; Crippled and Homebound—Donna Henderson

The Master of Arts degree is awarded in three programs provided by the Department of Special Education. These programs are individually designed to prepare graduates to work effectively with certain types of atypical children and/or qualify for supervisory or leadership roles in special education.

**Prerequisites:**

1. Michigan Teaching Certificate or equivalent.
2. A minimum of one year of successful teaching experience.
3. A point-hour ratio of at least 2.6 during the last sixty semester hours of undergraduate study and 3.0 in the special education major. Non-majors will be required to complete selected prerequisites with a minimum grade of "B" in each of the courses.

The Master of Arts degree program in Special Education is designed for the following:

1. Experienced regular classroom teachers interested in obtaining approval to teach mentally handicapped, emotionally disturbed or crippled and homebound children can qualify for the Master of Arts degree by completing a major in a categorical area and the requisite courses as determined by the adviser. Prerequisite courses which are to be completed prior to admission to the graduate degree program include the following:

   - TEED 312 Teaching of Reading
   - SPED 530 Education of Exceptional Children
   - SPED 533 Diagnostic and Prescriptive Techniques in Special Education
   - SPED 534 Curricular and Instructional Provisions for Exceptional Children and Youth
   - SPED 588 Behavior Disorders in School-Aged Children and, one of the following:
SPED 532 Nature and Needs of the Mentally Handicapped
SPED 543 Nature and Needs of Crippled and Homebound Children
SPED 589 Program and Intervention Strategies for the Socially and Emotionally Maladjusted

2. The Master Clinical Teacher program is specifically designed to accommodate experienced special classroom teachers who have earned an undergraduate degree in special education and are desirous of acquiring advanced knowledge skill and experience in working with exceptional children and youth.

3. Special Education personnel who wish to obtain professional preparation which will enable them to serve in leadership roles, are expected to have earned an undergraduate degree in one of the categorical areas of exceptional children and have special class teaching experience. Major emphasis in this program will be placed on research, supervision and administration in special education.

All students who receive a Master’s degree in the field of Special Education must complete the following requirements:

1. A minimum of thirty hours of graduate level work, fifteen of which must be in Special Education.

2. Six hours of core courses in Education, including TEED 601, Introduction to Research in Education.

3. Nine hours of credit in courses offered by departments outside the College of Education.

4. A comprehensive written examination administered after the student has completed a minimum of fifteen semester hours. Responsibility for scheduling this examination is to be assumed by the graduate student after consulting with the program adviser.

CURRICULA PROVIDED BY THE DEPARTMENT OF TEACHER EDUCATION AND COOPERATING DEPARTMENTS

Audiovisual Media

Advisers: David H. Curl, Kenneth E. Dickie

The Master’s degree program in Audiovisual Media is intended to provide teachers and educational administrators with opportunities to gain competencies in organizing, implementing and managing instructional resources and technology.

Requirements for the degree:

1. TEED 548, Audiovisual Media I, or equivalent transfer course taken before entering the Master’s degree program.

2. At least thirty hours of graduate credit, including courses from the following areas:

   a. Educational Communications and Technology: Most programs will include TEED 549, Audiovisual Media II; TEED 641, Instructional
Master's Degree Programs

Development; and TEED 648. Instructional Media Seminar. Other work, including internship and related courses from outside the College of Education, will be selected to meet the professional goals of the student.

b. **Management and Administration:** At least one course in this area, usually TEED 647. Administration of Audiovisual Media Programs.

c. **Research:** At least one course in this area, usually TEED 601. Introduction to Research in Education.

d. **Curriculum and Foundations:** At least two courses in this area are recommended for students expecting to teach in the public schools. Usually either TEED 603. Social and Philosophical Foundations or TEED 604. Psychological Foundations of Education is elected, plus a course in curriculum at the appropriate level.

e. **Librarianship:** Students desiring certification as a School Media Specialist must declare this intent upon entering the graduate program. Special sections of some courses are offered. Students will be advised of courses and field experience required for State certification.

Teaching the Economically and Educationally Disadvantaged

*Advisers:* George Miller, Jess M. Walker, Carol P. Smith

The rapid urbanization of our population accompanied by profound changes in industrial technology has created a large group of economically underprivileged people living in environmental conditions and maintaining value systems significantly different from those of the traditional middle class. This disparity has created both a problem and a challenge for the education profession. This Master of Arts degree program is designed to prepare elementary and secondary teachers to work with economically and educationally disadvantaged children.

Requirements for the degree are:

1. Thirty hours of graduate credit including the required course of TEED 560. Practicum: Sociological and Psychological Foundations of Teaching the Disadvantaged; TEED 601. Introduction to Research in Education; TEED 659. Seminar: Methods and Techniques in Teaching the Disadvantaged; and TEED 712. Professional Field Experience.

2. The remainder of the degree requirement may be satisfied by selecting courses in the student’s major and minor fields of specialization, from related areas and from areas of special need, depending upon the background of the student, the educational level of children taught, and the vocational goal of the student. These courses are selected to provide depth and breadth in subject matter fields as well as to improve understanding of the social, cultural and educational problems of disadvantaged children.

Teaching in the Community College

*Advisers:* Owen Middleton, Cameron Lambe, William Kanzler

The requirements for this curriculum including a minimum of thirty hours of graduate level work courses in professional education and the student’s major and minor fields distributed as follows:
1. Seven hours made up of the following professional courses: TEED 601, Introduction to Research in Education; TEED 650, Characteristics of the College Student; and TEED 690, The Community College.

2. A minimum of sixteen hours in the student's major. It is assumed that the student will also have completed an undergraduate major in this field.

3. A maximum of seven hours may be elected from the student's minor area for cognate courses related to the major field. In cases in which a student has had little or no teaching experience, an internship may be substituted for one or more courses at the discretion of the adviser.

Teaching of Reading

Advisers: Dorothy J. McGinnis, Joe Chapel, Ron Crowell, Betty Johnson, Bruce Lloyd

Prerequisites: Completion of a minimum of fifteen hours of undergraduate work in professional education including a course in the teaching of reading. Accumulation, during the last two years of undergraduate work, of a point-hour-ratio of at least 2.6, and a minimum of one year of teaching experience before candidacy.

Requirements for the Degree: Thirty hours of graduate work are required as a minimum for graduation and may be selected from the following three groups:

1. Eight or nine hours selected from the following courses in the Education core: TEED 601 (required), Introduction to Research in Education; TEED 602, School Curriculum; or TEED 510, The Elementary Curriculum; or TEED 622, Middle-Junior High School Curriculum; TEED 603, Social and Philosophical Foundations; and TEED 604, Psychological Foundations of Education.

2. Fifteen or sixteen hours in education, twelve of which must be in reading. The following TEED courses are required: Clinical Studies in Reading 586; Educational Therapy in Reading 587; Reading and Related Language Experiences 597; and Seminar in the Teaching of Reading 615.

3. Six hours outside the College of Education which have been approved by the adviser.

Curricula in Teaching

The following teaching curricula all have the same general requirements for completion of the thirty graduate hours for the Master of Arts degree. These requirements include:

1. Nine hours selected from the following four courses in the Education core:
   a) TEED 601, Introduction to Research in Education
   b) TEED 602, School Curriculum (Students enrolled in Teaching in the Middle or Junior High School, or are teaching or planning in the Middle or Junior High School should substitute TEED 622.)
   c) TEED 603, Social and Philosophical Foundations
   d) TEED 604, Psychological Foundations of Education

2. Fifteen hours in the major or related academic fields.

3. Six hours of electives, some or all of which may be professional education or the major field.
Master's Degree Programs

The Curricula in Teaching, the graduate advisers and the prerequisites for admission, in addition to the fifteen hours of undergraduate work in professional education or the equivalent, are listed below:

Teaching in the Elementary School


Teaching in the Middle or Junior High School

Advisers: Clara R. Chiara, Sarah Jane Stroud

Teaching of Art

Adviser: Charles E. Meyer
Prerequisite: Portfolio required, request criteria from Art Department (general level of competency now required is equivalent to a major in Art.)

Teaching of Business Education

Adviser: L. Michael Moskovis
Prerequisite: Minor in business or the equivalent

Teaching of Distributive Education

Adviser: Raymond A. Dannenberg
Prerequisite: Must qualify for a vocational certificate as a coordinator

Teaching of Home Economics

Adviser: Frances J. Parker
Prerequisite: Minor in Home Economics

Teaching of Industrial Education

Adviser: Charles G. Risher
Prerequisite: Minor in Industrial Education

Teaching of English

Adviser: John H. Stroupe
Prerequisite: Minor in English

Teaching of Music

Adviser: Donald P. Bullock
Prerequisite: Major in Music

Teaching of Physical Education

Advisers: Women—Ruth Ann Meyer; Men—George G. Dales
Prerequisite: Minor in Physical Education

Teaching of Science

Adviser: Paul E. Holkeboer
Prerequisite: Minor in one department of the science division
Teaching of Mathematics

Adviser: Robert C. Seber
Prerequisite: Minor in Mathematics

Teaching of Social Sciences

Adviser: William S. Fox
Prerequisite: Twenty-five hours in combined fields of economics, history, philosophy, political science and sociology

Teaching of Speech Communication

Adviser: William E. Buys
Prerequisite: Minor in speech with suitable cognates

English

John H. Stroupe, Adviser

The Master of Arts degree program in English provides at an advanced level a study of the history of literature, the history and characteristics of the genres, literary theory, and literary process in the works of a major author. Those desiring to enter the program should present a thirty-hour undergraduate major with a grade-point average of 3.0. At least twenty hours of the major must be in courses in literature; no more than fifteen of the thirty should be at the freshman-sophomore level. Students should consult with the adviser at the earliest opportunity concerning their schedule of study, which will include where possible a concentration in some field as well as courses that meet the objectives of the program.

Required courses in the program are English 660, 661, and 668. Other requirements are detailed in a general informational booklet titled "M.A. Programs in English" which is available from the Department of English or the English graduate adviser.

Geography

Oscar H. Horst, Adviser

The Master of Arts degree program in Geography permits specialization for advanced study in the discipline and is also intended for those contemplating careers in fields such as planning, cartography, and conservation. A special internship is available for students interested in urban studies. Additional training is offered in the area of the teaching of Geography.

Admission requirements: An undergraduate major in Geography or its acceptable equivalent. In the event of deficiencies in the student’s undergraduate program (particularly in the areas of physical and economic geography, and cartographic techniques), he may be required to elect additional non-credit courses in order to satisfy departmental requirements.
**Program requirements:**

1. Thirty hours of graduate credit in Geography and cognate fields with at least twenty hours in Geography.

2. Completion of required courses: GEOG 568, 661, and 664.

3. Completion of at least two courses with a maximum of ten hours in one of the six following areas of concentration: Regional, Economic, Urban, Cultural-Historical, Political, and Physical Geography.

4. Completion of 2–6 hours at the 700 level; the minimum requirement thus is a 2-hour research paper.

5. Successful completion of written qualifying examinations prior to application for candidacy.

6. Demonstrated competence in:
   a. General physical and cultural patterns
   b. Documentary analysis
   c. Philosophy of Geography
   d. Cartographic representation of data
   e. Field procedures

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**Geology**

Richard V. McGehee, Adviser

The Master of Arts degree in Geology is designed to prepare the student for professional work in geology and for further graduate study.

**Admission requirements:** Undergraduate major in geology. Consideration of other preparation will be handled on an individual basis.

**Program requirements:**

1. Thirty semester hours of graduate credit in Geology and related areas (in other sciences and mathematics), with at least twenty-one hours in Geology. Up to nine hours in related areas may be chosen with the consent of the graduate adviser.

2. GEOL 660. Seminar in Earth Science. Participation is required each semester in residence. Each student must make one formal presentation each year.

3. Satisfactory completion of GEOL 700, Master's Thesis (6 hrs.).

4. Pass a comprehensive oral examination.

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**History**

Lewis H. Carlson, H. Nicholas Hamner, Advisers

**Admission requirements:** Either completion of thirty hours of undergraduate credit in the social sciences and closely related subjects, including at least fifteen hours of
Program requirements:

1. Earn thirty hours of graduate credit, of which at least twenty hours must be in history, and the remainder in a department approved by the graduate adviser.

2. Choose two of the following fields, one of which is designated as the area of concentration, and pass written and oral comprehensive examinations in each: (1) Ancient, (2) Medieval, (3) Europe, 1500-1815, (4) Europe, 1815 to the present, (5) United States to 1877, (6) United States since 1877, (7) Latin America, (8) Far East, (9) Russia and Eastern Europe, (10) Africa, and (11) Special Areas.

3. Choose one of the three options listed below:
   (a.) Complete two seminars, one of which must be in the designated area of concentration.
   (b.) Complete one seminar and write a Master's Essay (4 hrs.) in the designated area of concentration.
   (c.) Complete one seminar and write a Master's Thesis (6 hrs.) in the designated area of concentration.


5. The Department recommends that students planning to do graduate work in history acquire a reading knowledge of an appropriate foreign language.

Home Economics

The Master of Arts degree program in Home Economics is designed for the person with a Bachelor of Science or Arts in Home Economics and is planned to provide a general program of studies in the whole area of Home Economics for the person who may have specialized in: a) Foods and Nutrition, b) Textiles and Clothing, and c) Family Relationships. The Student may or may not have specialized in one of these areas but will have had the foundation courses to pursue them at the graduate level and could broaden the scope and depth of understanding in one of the three areas. The degree may be used as a foundation for continued graduate work leading to a Doctor's degree at another institution.

The program is planned for the following students:

1. Dietitians working toward a Master's degree or who have been out of the field and membership in the American Dietetics Association has been dropped and now are required to take a minimum of five hours of academic work to be reinstated.

2. The Home Economist in Business who may need extra work in specific areas;

3. The Home Economist in Extension;
Master's Degree Programs

4. The School Lunch Manager;

5. The Teacher of Home Economics who may have been employed and desires to bring herself up-to-date in Home Economics subject matter for college teaching.

Program requirements:

1. Choose 8-10 hours in a minimum of three courses in the following basic courses: HEC 500, Advanced Textiles; HEC 510, Advanced Nutrition; HEC 518, Advanced and Experimental Foods; HEC 520, Equipment; HEC 600, Clothing Techniques; HEC 650, Advanced Study of Home Management; HEC 652, Family Life Education.

2. Complete a total of twenty hours of work in Home Economics at the graduate level including a minimum of two hours of seminar credit.

3. Complete a minimum of ten hours of work at the graduate level in allied areas; e.g., Sociology, Psychology, Economics, Biology, Chemistry, Education, Art.

International and Area Studies

Fredric J. Mortimore, Chairman of Advisers

The Master of Arts degree program offered by the Institute of International and Area Studies provides great flexibility for students who desire graduate-level training in either Area Studies or Comparative/Cross-Cultural Studies. The program is interdisciplinary in scope and can be geared to meet the needs of students preparing for teaching careers, posts in governmental or international agencies, positions in international trade or with corporations having overseas operations, and advanced graduate study leading to terminal degrees in the social sciences, international studies, or area studies.

Several fields of specialization are possible within this program. They are:

African Studies
Asian Studies
Comparative/Cross-Cultural Studies
Latin American Studies

Because of the numerous possible combinations permitted within this degree program, the Institute of International and Area Studies coordinates admission, advisement and examination procedures. Each student enrolled meets with Institute personnel at the time of admission to determine his interests and academic goals. An Advisement Committee is then selected for the purpose of providing academic guidance. Students enrolled in any of the M.A. programs are required to meet with their Advisement Committee at least once each semester.

An Examination Committee, membership of which reflects the student’s program of study, administers written and oral comprehensive examinations which the student must satisfactorily pass in order to be awarded the degree. Students failing to pass the comprehensive examination may be required to undertake further course work or independent study before examinations are re-taken.

Completion of the M.A. programs require a minimum of 36 semester hours.
although the Advisement Committees may require substantial course work beyond this minimum from those students with limited prior preparation in the social sciences, cross-cultural or area studies.

Students who contemplate later Ph.D.-level study in a traditional discipline will be advised to obtain a disciplinary concentration in the field of their choice. In certain cases students with severely limited undergraduate preparation in a discipline may be advised to take a disciplinary M.A. with limited cognate work in Comparative/Cross-Cultural or Area Studies. Acquisition of foreign language and other research skills is strongly recommended for those students planning later doctoral-level study.

Modern and Classical Languages
Roger L. Cole, Chairman of Advisers

The Master of Arts degree in French, German, Latin and Spanish stresses improving the candidate’s competence in the subject language and literature.

Admission requirements: An undergraduate major or thirty semester hours or the equivalent in a language.

Program requirements:

1. Completion of thirty semester hours of graduate study of which twenty to thirty are in one language. Six hours toward the requirement in Language study may be satisfied at the option of the Department by the presentation of an acceptable Master’s Thesis. Furthermore, a maximum of ten hours of graduate study may be applied in appropriate cognate fields. Selection of cognate courses is made by the adviser after determination of the candidate’s specific needs and interest.

2. Oral and written examination over the candidate’s area of concentration.

Librarianship
Jean E. Lowrie, Adviser

The School of Librarianship prepares qualified students to become effective librarians in the changing world of communication. Instruction is aimed at acquainting the student with the concepts, principles and problems of librarianship and with the development of libraries so that he can interpret the role and potential of the library in contemporary society. The program of the School of Librarianship is accredited by the American Library Association and the School is a member of the Association of American Library Schools.

Specialization is available for those interested in school library/media centers; in public library service for children, young adults and adults; and in academic and special library service. In addition, a student may choose map librarianship or information science as a field of concentration or may enter a special program for community college service to minority groups. All instruction in the School is designed with a multi-media approach.
The requirements for the degree of Master of Science in Librarianship are as follows:

1. Thirty to thirty-six hours of approved graduate courses with a minimum of twenty semester hours in library science at the graduate level.

Candidates without previous training in library science will need to take the Required Courses as specified in the following list plus Elective Courses in the fields of their special interest to total thirty-six semester hours. A student with an undergraduate minor in librarianship is required to complete a thirty hour program and may elect courses from other departments for a total of six to eight semester hours.

**Required Courses:** 11B 510, 512, 530, 600, 622, 629.

Course descriptions and courses to be chosen as electives in Library Science will be found under the listings for the School of Librarianship. At the time of application for candidacy, the student must have completed three of the required courses.

2. A satisfactory research paper required as partial fulfillment of a course requirement or, with the consent of the graduate adviser, a Master’s Thesis for six hours of credit.

Candidates preparing for school library service must meet the teacher certification requirements in the state in which they wish to be employed.

**Specialist Degree Programs in Librarianship**

The School of Librarianship offers post-master’s degree programs for those interested in administration of the school media center, the public library, and libraries in community colleges. See Specialist in Arts in Librarianship. Additional information is contained in the Bulletin of the School of Librarianship, which may be requested from the School’s office in Waldo Library.

**Mathematics**

Robert L. Blefko, Chairman of Advisers
A. Bruce Clarke, Department Chairman

The Department of Mathematics offers graduate programs leading to the Master of Arts in Mathematics, the Master of Arts in the Teaching of Mathematics, the Master of Science in Statistics, the Master of Science in Applied Mathematics with concentration in Computer Science, the Master of Science in Operations Research, the Specialist in Arts in Mathematics, and the Doctor of Philosophy in Mathematics.

The Degree of Master of Arts in Mathematics extends the student’s knowledge in the areas of algebra, real and complex analysis, applied mathematics, combinatorics, geometry, number theory, statistics, and topology. The program permits specialization in preparing for advanced study, and provides additional training for teachers of mathematics and students seeking employment in industry.

In addition to the general admission and degree requirements, the M.A. student in the field of Mathematics must satisfy the following:
1. Have completed, with satisfactory grades, an undergraduate major in mathematics, or equivalent. If the student's undergraduate program in Mathematics does not meet approved standards, he may be required to elect additional courses or otherwise satisfy the requirements of the department.

2. Complete a minimum of thirty hours of approved course work, with at least twenty-four hours in Mathematics, including:
   a. MATH 520, General Topology I, or have had the equivalent prior to entering the program;
   b. MATH 530, Linear Algebra, or have had the equivalent prior to entering the program;
   c. MATH 571, Foundations of Analysis, or have had the equivalent prior to entering the program;
   d. MATH 630, Abstract Algebra I;
   e. One of the following: MATH 670, Measure and Integration; MATH 673, Real Analysis; or MATH 676, Complex Analysis I;
   f. An approved graduate level sequence.

3. Pass the Departmental Graduate Examination, which will cover the basic material in topology, linear algebra, and analysis included in MATH 520, 530, and 571. This examination is to be taken as soon as possible after the student has covered the required material.

4. Pass the Final Master's Examination in the final term of his masters program. This examination will cover the 600-level material in his M.A. program.

The specific requirements for an M.A. in Mathematics with concentration in Statistics are listed under the Master's degree program in Statistics.

For students specializing in applications of Mathematics, the preceding requirements can be modified somewhat. Students interested in a M.S. program in Statistics, Computer Science, or Operations Research should consult the requirements listed under those headings. Students interested in the M.A. program in the Teaching of Mathematics should consult the section on Master's degree programs in Education.

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Department Chairman, or one of the Program Advisers.

**Medieval Studies**

John R. Sommerfeldt, Adviser

The curriculum leading to the degree of Master of Arts in Medieval Studies is designed to provide a broad background in medieval history, languages, literatures, philosophy and religion. The program is available to students with undergraduate majors in history, art, philosophy, music, English, German, French, Spanish, Italian, Latin, theology or religion, or other preparation accepted as the equivalent by the Medieval Institute.
Master's Degree Programs

The requirements for the degree are as follows:

1. Before admission to candidacy, the student is expected to present (a) a survey course in medieval history, and (b) course work in philosophy or religion.

2. The course work includes a minimum of (a) three courses in medieval history, (b) three courses in medieval philosophy and/or medieval religion, (c) two courses in medieval literature, and (d) course work in methodology. Courses taken as an undergraduate can be counted toward these area requirements. The student must complete a minimum of thirty semester hours of graduate work.

3. The preparation of an acceptable Master's Thesis (6 hrs.).

4. Demonstration of the ability to read Latin and either German or French.

5. Pass the comprehensive examination given by the committee in charge of the program.

Music

The Department of Music offers course work leading to a Master of Music degree in five different areas of concentration: Applied Music, Composition, Music Education, Musicology, and Music Theory. Western's Department of Music is accredited by the National Association of Schools of Music and all five graduate programs carry curriculum approval from that accreditation association. The Master of Music degree program is designed for the student with the Bachelor of Music degree, or its equivalent, in order to enhance the student's teaching, performing, research, and creative abilities in music.

The graduate student adviser in the Department of Music works closely with each graduate student in planning and implementing a degree program which will accommodate the student's professional needs and interests and, at the same time, will realize the full value and depth of the University's graduate offerings. In order to determine the student's needs a comprehensive examination will be administered upon entry to the degree program. These preliminary examinations are divided into five areas—applied music, music history/literature, music theory, piano proficiency, and conducting. The areas in which the student will be required to take the examination will be determined by his choice of areas of concentration for his degree program. The preliminary examinations will also help the graduate adviser in providing information to the student regarding probable success in the degree program of the student’s choice and any time limitations that may apply to the student’s completion of degree requirements.

Minimal requirements for the Master of Music degree include the completion of fourteen semester hours of course work in the student's major area of concentration, six semester hours in each of two minors to be selected from the remaining four areas of concentration, and four semester hours of cognate work outside of the field of music. Culminating projects in the form of a recital, composition, thesis, special project, or comprehensive examination are also required. The right is reserved to withhold the recommendation of a candidate for a degree if the student has not demonstrated sufficient maturation and musicianship.

Donald Bullock, Adviser
Refer to the *Music Supplement* for more detailed descriptions of the major areas of concentration.

The Departments of Music and Teacher Education also offer a Master of Arts degree program in the Teaching of Music. This degree program also carries accreditation by NASM and is designed for the student who holds a Bachelor of Science degree with a major in music and a minor(s) in a field outside of music, i.e., elementary education. The basic purpose of this degree program is to offer course work in music and teacher education which will enhance the student's teaching abilities in general, and especially in the area of music.

Minimal requirements for the Master of Arts degree in the Teaching of Music include the completion of nine semester hours of course work offered in the Department of Teacher Education, ten semester hours in courses in music education, four semester hours in non-education music courses, and seven semester hours of electives from the three areas just mentioned, to be selected by the student in consultation with the graduate adviser in Music.

**Administration and Supervision of Occupational Therapy**

The Master of Arts degree in Occupational Therapy is designed to prepare students for administrative and supervisory positions in the field. Special emphasis is given to the organization of clinical education. In addition to meeting the general admission requirements of The Graduate College, the candidate must have completed a Bachelor's degree in Occupational Therapy or in a related field with a certificate in Occupational Therapy. A year of experience between undergraduate and graduate studies is recommended. Admissions to this program are closed through the 1973-74 academic year.

In order to qualify for the Master of Arts degree, the student must complete a minimum of thirty semester hours of approved graduate courses according to the following pattern:

1. Fourteen hours from the following courses in Occupational Therapy: Professional Literature 630, Supervision of Occupational Therapy 632, Administration of Occupational Therapy 633, Clinical supervision 650, and Professional Field Experience 712, (experience in organization and administration of occupational therapy).

2. Eight hours selected with the help of the graduate adviser from related fields, including Management.

3. Six hours including TEED 601, Introduction to Research in Education.

4. A paper of significance will be required in Independent Study 710.

**Occupational Therapy**

The purpose of the Master of Occupational Therapy degree program is to prepare qualified college graduates for the profession of occupational therapy.
year of work experience following the baccalaureate degree is necessary for admission to the program. In general, the requirements for the degree are:

1. Completion of approximately thirty-six semester hours in basic occupational therapy education or previous preparation and life experiences accepted as equivalent by the department.

2. Completion of twenty-four semester hours including the following professional courses: Kinesiology 510, Medical and Orthopedic Conditions 524, and Professional Field Experience 712 (internship of a minimum of six months is required by the accrediting associations).

3. Completion of six semester hours including TEED 601, Introduction to Research in Education.

Admissions to this program are closed through the 1973-74 academic year. Limited admissions will be accepted September 1, 1973 through November 1, 1973 for the 1974-75 academic year. No applicants will be considered prior to September 1, 1973.

Operations Research

Franklin K. Wolf, Program Director

The Master of Science degree program in Operations Research is an interdisciplinary program permitting the student to build a flexible plan of study emphasizing the relationship between operations research and his professional field. Participating are the Departments of Economics, Engineering and Technology, Management, and Mathematics. The purpose of the program is to provide the student who has an undergraduate degree in one of the involved disciplines with a basic knowledge of the philosophy and techniques of operations research and the ability to apply such to his particular discipline.

The entering student is assumed to have an undergraduate degree in Economics, Industrial Engineering, Management, or Mathematics, but students with degrees in other areas will be considered. A student’s program will be designed with consideration of his prior experience, both formal and practical, and his career goals, and must be approved by the Program Director and the adviser for the Operations Research program in department from which he received his undergraduate degree. An approved program must meet the following requirements:

1. A minimum total of thirty semester hours.
2. MATH 560 and 562 are required.
3. A minimum of twelve semester hours from courses on the approved list of operations research related courses.
4. A maximum of eight semester hours of courses cognate to the student’s undergraduate degree.
5. A three semester hour project.

Certification for graduation shall include the preparation of an oral presentation of his project and an examination covering the basic areas in which he has studied.
Paper Science and Engineering
Raymond L. Janes, Adviser

The Master of Science degree program in Paper Science and Engineering is designed to provide theoretical, laboratory, and pilot-plant experiences which are basic to the development of professional competence in pulp and paper science and engineering. The department is internationally recognized in the field of paper coating and for its outstanding semi-commercial sized papermaking and coating machines. Its laboratories and equipment are the most complete of any similar academic institution.

Persons eligible for the program include: (a) graduates of Paper Science and Engineering with a B.S. degree from Western Michigan University or from similar programs in the U.S., or (b) B.S. degree graduates in engineering, chemistry, or physics. Science or engineering majors who are accepted by The Graduate College but lack background in pulp and paper may be required to complete background studies as determined by the Department.

The academic program consists of a minimum of thirty semester hours of graduate credit which must include:


2. Satisfactory completion of a Master’s Thesis (6 hrs.) based on either an experimental or theoretical topic, under the guidance of a Committee selected by the department.

3. A minimum of nine additional hours of graduate courses from the chemistry, physics, or mathematic departments, selected with the consent of the graduate adviser. Suggested courses include: Chemistry 520, 560, 610, 630, and 661; Physics 552, 563; Mathematics 506, 574.

Physics
Allen C. Dotson, Adviser

The program for the Master of Arts degree in Physics consists of a minimum of thirty semester hours of graduate credit which must include:

1. The following twelve hours of core courses in Physics: Quantum Mechanics I 622, Statistical Mechanics 624, Classical Mechanics 630, and Electricity and Magnetism 662. Substitutions for these courses may be made only with the approval of the graduate adviser.

2. Twelve additional hours from Physics, Mathematics, or other departments chosen with the consent of the graduate adviser.

3. Satisfactory completion of a Master’s Thesis (6 hrs.) based on either an experimental or theoretical problem, under the guidance of a committee of the graduate faculty in Physics. The committee may require an oral defense of the thesis before approving it for submission to The Graduate College.
Graduate students are expected to attend the Graduate Colloquium which is a program for graduate students and Physics staff members presented by members of the WMU Physics staff and visitors from other institutions on topics related to their research specialties. Graduate students are also expected to attend the Physics Public Lectures. A series of talks on topics of general interest in Physics and related fields.

Political Science

In addition to meeting the general admission requirements of The Graduate College, a student must have completed at least twenty-four hours of work in the Social Sciences with a 3.0 record (on a 4.0 scale) or have equivalent preparation acceptable to the department. The department may require the student to make up deficiencies in undergraduate preparation and/or require the Graduate Record Examination.

In order to qualify for the Master of Arts degree in Political Science the student in addition to satisfying the general requirements of The Graduate College, may choose between the thesis and non-thesis M.A. programs. Requirements in the two programs may not be interchanged.

Requirements for the thesis program:

1. Complete thirty hours of work in Political Science. With the written approval of the graduate adviser, a student may substitute a maximum of six hours of cognate work appropriate to his program.

2. Satisfactorily complete PSCI 564, Political Inquiry and Analysis. In addition, the department strongly recommends that the student consider PSCI 590, Research Methods.

3. Satisfactorily complete at least three hours in each of two of the following four fields:
   (a.) American Political System,
   (b.) International Relations,
   (c.) Political Theory and Methodology (excluding PSCI 564, 590, and 591), and
   (d.) Foreign and Comparative Political Systems

4. Complete PSCI 700, Master's Thesis (6 hrs.).

5. Pass an oral examination on the thesis and on the adequacy of the student's preparation in his political science program.

Requirements for the non-thesis program:

1. Complete thirty hours of work in Political Science. With the written approval of the graduate adviser, a student may substitute up to six hours of cognate work appropriate to his program.

2. Satisfactorily complete PSCI 564, Political Inquiry and Analysis. In addition, the department strongly recommends that the student consider PSCI 590, Research Methods.

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3. Satisfactorily complete at least three hours in each of three of the four fields of the department (as listed in Point 3 above).

4. Pass a written and oral examination on the adequacy of the student's preparation in political science.

Psychology

David O. Lyon, Adviser

The Master of Arts degree program in Psychology provides for specialized study in the areas of experimental analysis of behavior, applied behavior analysis, clinical psychology, and industrial psychology. Applicants should apply both to The Graduate College and the department. Those applying for Fall admission and requesting financial assistance should apply by February 1.

Admission requirements:

1. Completion of a major or broad minor in Psychology at the undergraduate level with satisfactory grades.

2. Graduate Record Examination—Aptitude Test.

3. Miller Analogies Test.

Program requirements:

1. Completion of six hours of electives in one or more fields which are related to Psychology.

2. Satisfactory completion of PSY 700, Master’s Thesis (6 hrs.), except for School Psychology.

3. In addition to the twelve hours specified in 1 and 2 above there are further requirements determined by the area of specialization elected by a student. In general a program of studies will be specified by the graduate adviser and the major professor to produce appropriate competence in the given area. Specialization requirements include:

   a. Experimental Analysis of Behavior—A minimum of eighteen credit hours in basic behavioral processes, laboratory techniques, and data analysis including Advanced Statistics 634. Areas of concentration include animal learning, operant behavior, physiological psychology and perceptual processes. This program is designed to prepare a student for doctoral training in experimental psychology.

   b. Applied Behavior Analysis—A minimum of eighteen credit hours with nine hours selected from basic behavioral processes, laboratory technology and data analysis, including Advanced Statistics 634. The remaining nine hours should be selected courses in behavior modification and theory, technology and application. This program is designed to prepare a student for doctoral training in behavior modification.

   c. Clinical Psychology—A minimum of forty-eight credit hours including twenty-four hours in the area of specialization, twelve hours of professional internship experience and twelve hours of general psychology, including Advanced Statistics 634. The area of specialization may include a broad spectrum of clinical theory and application or be specific
to the theory and techniques of behavior modification. An appropriate substitute for the thesis may be arranged with the consent of the graduate adviser. The Clinical Program may be designed to accommodate either students who plan to engage in professional work at a Masters' Degree level of proficiency or those interested in continuing graduate studies for a doctorate in the clinical area.

d. Industrial Psychology – The typical thirty-six hour program will include twelve to fifteen core hours in such areas as personnel selection, statistical analysis, and human motivation in industry. Approximately nine more hours in psychology and six to nine hours outside of the Department may be directed toward specializations in personnel training, counseling, consumer, organizational psychology, or basic preparation for Ph.D. training. A thesis is required of persons planning to complete a Ph.D. Others may write a thesis or complete a three to six hour individual research project. The selection of courses outside the core, including the thesis option, will be established after consultation with one of the industrial psychology staff.

School Psychology

Paul R. Fuller, Adviser

Admission requirements: A major or minor in psychology or the equivalent, to include courses deemed advisable by the Psychology Department.

To satisfy the requirements in this curriculum the student must elect courses from the offerings in Education and Psychology as follows: Special Education 530, 532 and 635; Teacher Education 610 or equivalent; Psychology 517, 530 or 634, 623, 624, 660, 661, 663, 680 and/or 681, 682, 683 and 697. Substitutions may be made in certain cases with the consent of the graduate adviser.

The courses deemed advisable for a background in the program include Abnormal Psychology, Psychology of Personality, Laboratory in Psychological Testing, Elementary Experimental Psychology, Learning and Memory, Special Education and Teaching of Reading. They must be taken either at the undergraduate level or made up with additional graduate courses. A minimum of thirty hours in courses approved by the adviser, plus the internship, will qualify a student for a Master's degree in School Psychology.

Upon satisfactory completion of the School Psychologist MA program, completion of a 540 clock-hour internship and evidence of professional standing in psychology or possession of a Michigan Teaching Certificate, the student may qualify for temporary approval to work as a School Psychologist (diagnostician) under the laws of the State of Michigan. For full and permanent approval as a School Psychologist, refer to the description of the Specialist in Education program for the School Psychological Examiner.

Social Work

Lynne Riehman, Director of Admissions

The graduate-professional program in Social Work is designed to prepare students for direct service and leadership positions in the field of Social Welfare. A two-year course of academic and field education is offered. The curriculum is structured as an integrated and sequential set of conceptual and practicum type
educational experiences. These are focused around alternative approaches to the solution and amelioration of contemporary social problems. Social Work practice is examined as a problem solving response to emerging and extant social conditions which have negative consequences for individuals, the family, special groups, the local community and the society at large.

Problem-solving specializations are currently offered by the School of Social Work in the areas of corrections, community mental health, family and child welfare, rehabilitation with high risk groups and school social work. Career opportunities for professional social workers are excellent in all of these fields. Students may select a specialization along with a concentration in the areas of social treatment and/or social planning and administration.

There are five major content areas in the curriculum.

1. Social Policy
2. Social and Behavioral Theory
3. Social Welfare Research and Technology
4. Social Work Practice
   a. Social Treatment Concentration
   b. Social Planning and Administration Concentration
5. Field Education

Criteria for admission:

In addition to The Graduate College’s requirements for admission to a Master’s degree program, the following criteria will be considered:

1. Evidence of adequate academic preparation for graduate study in social work. This includes consideration of both undergraduate performance and area of study. (Undergraduate preparation in the social and behavioral sciences and social work-social welfare is given particular attention.)

2. Evidence of personal qualifications considered desirable for successful social work practice. These include motivation for a human service profession, personal maturity, and leadership ability.

Degree requirements:

1. The successful completion of sixty hours of credit, graded on a credit-no credit basis, is required for the Master’s degree in Social Work. This will include the following course credits:

   Semester Courses in the School of Social Work ........... 26–30 hours
   Semester Courses in other university departments ....... 6–10 hours
   Semester Field Education ........................................ 16 hours
   Field Studies in Research and Practice ....................... 8 hours
   ................................................................. 60 hours

2. Proficiency in social and behavioral theory, social policy and research must be demonstrated by either passing examinations or taking prescribed courses.

Financial aid is available to qualified full-time students. Information regarding the various types of available assistance may be obtained by writing to the Director of Admissions.
Sociology

Charles B. Keely, Lewis Walker, Advisers

The Master of Arts degree program in sociology is designed to (1) give students an advanced understanding of the significant factors and processes of human society, (2) further the preparation of those planning to teach in secondary or higher education, (3) prepare students for doctoral study in sociology, and (4) provide professional training for a variety of occupational opportunities in government, industry, education, research organizations, social agencies, and correctional systems.

Eligibility for admission:

1. Students should have completed a minimum of twenty-four semester hours in undergraduate work in the social sciences, of which fifteen semester hours should be in sociology, including courses in theory and research methods.

2. Students should have a grade-point average of 3.0 or better in undergraduate sociology courses.

3. If these requirements have not been met on the undergraduate level, the student may be required to complete additional course work as a condition of admission.

4. Three letters of recommendation, from academic or professional sources, must be sent to the departmental Graduate Admissions Committee.

Degree requirements:

1. Complete at least thirty hours of graduate credit, including thesis hours, selected in consultation with the Master’s adviser. Twenty to twenty-four hours must be in sociology courses with a 3.0 average; up to ten may be approved cognate areas.

2. Complete an original thesis or essay, using approved methods for investigation of a sociological topic. The thesis is recommended for students planning, and considered qualified for, doctoral studies. The thesis provides six hours of course credit, the essay two hours of credit toward the sociology credit requirements.

3. Pass an oral examination on the thesis or the essay.

Financial Support

A number of departmental, university and governmental assistantships, fellowships, and associateships are available to qualified students. Training opportunities and part-time employment are also available through the facilities of the Center for Sociological Research. Additional information and application forms may be obtained from the departmental administrative assistant.

Speech Pathology and Audiology

Robert L. Erickson, Harold L. Bate, Advisers

The Master of Arts degree program in Speech Pathology and Audiology, which is accredited by The American Board of Examiners in Speech Pathology and
Master's Degree Programs

Audiology is designed to provide academic and practicum experiences basic to the development of clinical competence in the management of language, speech and hearing disorders. Students may emphasize either Speech Pathology or Audiology during graduate study and, in either event, are expected to complete the academic and practicum requirements for certification of clinical competence by the American Speech and Hearing Association. The academic program consists of a minimum of thirty-five credit hours planned in accord with the guidelines indicated below. Supervised clinical practice is required during every term of registration and includes observation of Demonstration Therapy, participation in the Out-Patient Diagnostic Clinic, and assignment to an off-campus practicum for one term, in addition to regular case work responsibilities in the Speech and Hearing Clinic.

Admission requirements:

1. Completion of an undergraduate major in Speech Pathology, Audiology, Psychology, Sociology, Education, or other curriculum accepted by the department.

2. Accumulation, during the final two years of undergraduate work, of a point-hour ratio of at least a “B” in all speech pathology and audiology registrations.

3. The undergraduate preparation must include eighteen hours in courses that provide fundamental information applicable to the normal development and use of speech, hearing and language. Among these eighteen hours should be at least one course in phonetics, one course in anatomy and physiology of the speech and hearing mechanisms, one course in speech and language development, and one course dealing with the science of speech and hearing.

4. The undergraduate preparation also must include a minimum of twelve semester hours in courses which provide basic information regarding the diagnosis and treatment of voice problems, articulation disorders, stuttering, impaired hearing, and organic speech disorders in children.

5. Undergraduate deficiencies may be removed during the time that graduate courses are being completed, but a point-hour ratio of at least a “B” must be accumulated in these courses. These deficiencies must be removed prior to the student’s admission to candidacy.

Program requirements:

Two options are available with respect to the academic degree program. The student who elects to complete a Master's Thesis (6 hrs.) must complete twenty-nine hours of work plus the thesis. The student who elects the non-thesis option must complete thirty-five hours of course work. In either event, at least twenty-four hours of course work must be completed in the Department of Speech Pathology and Audiology. Additional requirements for the master’s degree are described below.

1. Completion of a core of required departmental graduate speech pathology courses specified by the department, with reference to the student’s intended emphasis.

2. Completion of at least one graduate seminar registration.

3. Students who desire Michigan Teaching Certification should contact the Certification Office, College of Education, Sangren Hall.
4. The student must have completed satisfactorily a total of at least 275 hours of supervised clinical practicum experience (including those hours, if any, accumulated as an undergraduate). This experience must include: work with pre-school, school age, and adult cases; group as well as individual therapy; diagnostic work; and work with a variety of disorders.

5. The student must manifest emotional and behavioral characteristics which, in the judgment of the departmental staff, will not jeopardize his professional competence.

6. Before being admitted to candidacy the student is required to demonstrate, by means of a written examination, satisfactory mastery and synthesis of basic information related to normal and disordered speech and hearing.

A thesis or one or more independent research registrations may be applied toward degree requirements by students who demonstrate research aptitude and interest. Students who anticipate further study toward a doctoral degree are expected to evidence the ability to formulate and conduct a research paper.

Information regarding the various forms of financial assistance available to graduate students may be obtained by writing to the graduate adviser.

**Statistics**

Gerald L. Sievers, Michael R. Stoline, Advisers
A. Bruce Clarke, Department Chairman

The Master's degree program in Statistics is offered through the Department of Mathematics.

Two types of programs are available in this area:

**Option I. Master of Arts (Theoretical).** This option combines a regular M.A. program in Mathematics with substantial work in statistics. A graduate from this option is well prepared to proceed into a doctoral program in statistics, to teach basic statistics at the college level, or to use statistics professionally.

In this option the student must complete the regular M.A. in Mathematics requirements with a program including the following courses: MATH 660, 665, and three of the following: 661, 662, 663, 664, 667, 669.

Admission requirements for this option are the same as for the regular M.A. in Mathematics program. The resulting degree is an M.A. in Mathematics with concentration in Statistics.

**Option II. Master of Science (Applied).** This option will give students a combination of: knowledge of statistical techniques, experience with using these techniques in applied situations, and understanding of the theoretical principles behind these techniques. Students receive excellent training for professional employment in industry or government, and at the same time obtain sufficient theoretical background to qualify them to teach elementary statistics, or to continue into more advanced degree programs. Part of this program involves experience in applied statistics carried out in cooperation with a local industry or a related department. Usually academic credit for this experience is obtained under MATH 663 or 712. The requirements in pure mathematics are not as extensive as in Option I.
Master's Degree Programs

In this option the student must complete thirty hours of approved graduate work, with at least twenty-four hours of Mathematics courses, to include:

1. MATH 506, 530, 562, 571, and 662.
2. Two of the following: MATH 661, 663, 664, 667, 669.
3. Professional field experience: Normally obtained under MATH 663 or 712.
4. One cognate course.

For admission to this option, candidates must have completed an undergraduate program containing a substantial amount of mathematics, including a complete calculus sequence. A mathematics major is not required. The resulting degree is an M.S. in Statistics.

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Department Chairman, or one of the Program Advisers.

Technology

The Master of Science degree program in Technology is sponsored by the College of Applied Sciences and is offered in the areas of Industrial Engineering and Industrial Supervision, and Electrical Engineering Technology and Mechanical Engineering Technology, and Industrial Education. The programs are designed for Engineers (electrical, industrial, mechanical, metallurgical, and manufacturing), Engineering Technologists (four-year graduates), Supervisors (foremen, general foremen, superintendents, and allied staff), Applied Research Supervisors (chemists, engineers, mathematicians, and physicists), Training Directors, Safety Directors, and Technical Teaching Staff of secondary schools, technical institutes, or community colleges.

Admission requirements:

1. Possess a baccalaureate degree with a major in a technical or related field.
2. Show evidence of completion of at least eight semester hours of mathematics and eight semester hours of physics and/or chemistry with a minimum overall grade average of 2.0 in this area.

Program requirements:

1. Complete a minimum of thirty semester hours of graduate work, including the course AAS 600, Introduction to Technology.
2. The academic program consists of four parts: a) Professional-Technical. One-half of the student's work is concentrated in a meaningful sequence of graduate courses in his specialty. A formal technical report completes this requirement. b) Leadership Resource Management. One-third of the course work is devoted to graduate studies concerned with leadership skills and techniques of resource management. c) Background and Cognate Courses. The remainder of the course work is devoted to graduate studies pertinent to current industrial problems. d) Oral Presentation. Each candi-
Master's Degree Programs

date presents a significant topic related to his graduate work during the last semester or session.

3. Show evidence of practical work experience in his major field of pursuit. Those who do not have this experience would be expected to spend a minimum of one semester (two to three hours credit) of supervised internship in industry involving his field of specialty.
SECTION III

Specialist Degree Programs and Requirements

GENERAL REQUIREMENTS FOR A SPECIALIST DEGREE

1. Admission—(See Calendar of Events for application deadline.)
   a. See specific program description to determine the minimal entrance requirements. The requirements range from a Bachelor's degree to a Master's degree.
   b. Official transcripts of all courses taken beyond high school showing the degrees earned.
   c. A point-hour ratio of at least 2.6 (A = 4) in the last two years of undergraduate work for all programs permitting entrance with Bachelor's degree. A point-hour ratio of at least 3.25 for all work undertaken beyond the Bachelor's degree.
   d. Attainment of satisfactory scores on the Aptitude and Advanced Tests of the Graduate Record Examination or a prescribed substitute. A satisfactory score usually is considered to be one that is at the 50th percentile or better.
   e. Attainment of a satisfactory score on the English Qualifying Examination. A non-credit English course must be passed by students failing the English Qualifying Examination. This requirement is waived for a student with an advanced degree.
   f. Acceptance by The Graduate College and a unit for a definite program of study.

2. Candidacy
   a. A permanent program which will constitute an application for admission to candidacy must be submitted during the first semester or session of enrollment.
   b. A point-hour ratio of a least 3.25 must be secured in all graduate work taken.

3. Graduation—(See Calendar of Events for application deadline.)
   a. Diploma Application
      A diploma application must be submitted no later than three months prior to Commencement. Three Commencements are held per year: April, August, and December.
Specialist Degree Requirements

b. Minimum Credit Hours

Completion of a minimum of sixty hours of accepted graduate credit in a program of study approved by an adviser.

c. Residence Requirement

1) One semester on the campus of Western Michigan University, or

2) Students studying for Specialist in Education may substitute two consecutive summer sessions and participation in a prescribed seminar or project during the intervening period. (Approved for students in Educational Leadership only.)

d. Point-hour Ratio

A point-hour ratio of 3.25 is required for all work taken on the campus at Western Michigan University as well as all work taken for the degree.

e. Transfer Credit

A student who has taken all of the credits for his M.A. degree at Western Michigan University may transfer a maximum of twelve credits from another institution in a Specialist degree program. A student who has already transferred six credits in his M.A. degree program at Western may transfer a maximum of six additional credits in a Specialist degree program. A student who has secured his M.A. degree at an institution other than Western may include a maximum of thirty credits in a Specialist degree program. Units offering Specialist degrees are expected to give credit to transfer for work only when the work is applicable and when it meets the same standards required for work completed at Western.

f. Off-campus Credit

Credit for work done in approved residence centers (Muskegon, Benton Harbor, and Grand Rapids) may be offered up to a maximum of twenty-six hours. This maximum must be reduced by the amount of transfer credit accepted. A student entering with a Master's degree may include a maximum of six credit hours of extension or residence center credit in addition to work completed as a part of his Master's degree. No more than eighteen hours of extension credit earned may be included if any of these credits are earned in other than residence centers.

g. Time Limit

All work accepted for the degree program must be elected within six years prior to the date of receipt of the Specialist degree. An exception may be made for work completed as part of a Master's degree earned prior to admission. A student entering with a Master's degree will be permitted a maximum of five years instead of six.

h. Specialist Project

A student completing the Specialist degree must present a Specialist project in a form acceptable to the unit and The Graduate College. In writing his paper, a student should consult the most recent edition of Specifications for Master's Theses, Specialist Projects, and Doctor's Dissertations, available in the Campus Bookstore.
SPECIALIST IN EDUCATION PROGRAMS

Educational Leadership

Advisers: Harold W. Boles, James A. Davenport, Dorothy McCuskey, Gerald C. Martin, Ted Ploughman, Rodney W. Roth, William P. Viall, Charles C. Warfield, Donald C. Weaver

The degree of Specialist in Education is awarded in curricula intended to prepare personnel for positions as educational leaders; positions that are largely non-instructional in nature. The degree is intended to be terminal, and a student choosing it should be fairly definite as to his professional goals and aspirations.

Students who apply to The Graduate College for admission to this degree will be notified whether he is accepted after a screening interview with a department committee and after receipt of Graduate Record Examination scores. Each student accepted will work with the Chairman of the Department of Educational Leadership to have an adviser and two committee members appointed. These persons will be selected in terms of the student's professional interests, and will work with him in outlining an individualized and multidisciplinary program of studies for him to pursue, constituted from departmental and other offerings in these focal areas:

<table>
<thead>
<tr>
<th>Hours</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Administration and Supervision</td>
</tr>
<tr>
<td>12</td>
<td>Human Relations</td>
</tr>
<tr>
<td>12</td>
<td>Concept Formation</td>
</tr>
<tr>
<td>3</td>
<td>Research</td>
</tr>
<tr>
<td>6</td>
<td>Independent study (Internship or Field Project)</td>
</tr>
<tr>
<td>16</td>
<td>Electives</td>
</tr>
<tr>
<td>60</td>
<td>Minimum Total</td>
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At least twenty hours of the sixty hour minimum must be taken outside the College of Education. Whether credits earned in another degree program will be allowed will be determined by the adviser on an individual basis.

Curricula available within this degree program include:

Line Administration—intended to prepare a person for a position as a superintendent or assistant superintendent of a school district; a principal of a primary, elementary, middle, junior high, or senior high school; a manager or director of a proprietary school, or as a central administrator in an institution of higher education or other post-high school educational agency.

Staff Administration—intended to prepare a person for a position as a coordinator, director, or supervisor of Business Affairs, Finance, Personnel, Curriculum, a special program such as Special Education, or a special service such as purchasing in public or private schools or in higher education.

Program Leadership—intended to prepare a person for a position as a Director of Training and/or Management Development in the armed forces, business, government, industry, a professional association, or a trade union; or a director or coordinator of educational programs in a social welfare agency.

Because of the different emphasis, the program for a Director of Curriculum may have a minimum of 8 hrs. in each of the Administration and Supervision and Human Relations areas.
Counseling and Personnel


A sixth-year program leading to the degree of Specialist in Education is offered by the Department of Counseling and Personnel. The degree is awarded upon satisfactory completion of a minimum of sixty semester hours of graduate work beyond the Bachelor's degree.

The Specialist in Education degree is designed to prepare competent persons, broadly and deeply educated, and well versed in the professional qualifications required of their respective educational specialties.

Advanced programs of study provide specialization for counselors, directors of pupil personnel services and administrators of student personnel services in higher education.

A flexible curriculum enables students to fulfill individual objectives. Course work is elected in three major areas:

1. Counseling and Personnel
2. Professional Education
3. Cognate Fields

Admission to the degree program will be contingent upon admission by The Graduate College, satisfactory performance on the Graduate Record Examination, and the approval of a departmental admissions committee. Following admission an adviser is assigned. The adviser and the student select two additional faculty members to serve on the student's Specialist committee.

School Psychological Examiner  Paul R. Fuller, Adviser

This program provides for the further training of persons working in the field of School Psychology. Successful completion of this program meets the requirement for full approval as a School Psychological Examiner in the State of Michigan. Prerequisite: The satisfactory completion of the Master's degree in School Psychology (or the equivalent).

The program is designed to prepare the student in the use of principles and techniques of psychology in a school setting. The student will be expected to acquire a knowledge of the deviant and exceptional child and of the basic techniques used in remediation and psychological research. To satisfy the requirements of this program the student must plan his sequence of courses with his adviser to assure competency in the following areas: (1) Testing of all types of children, (2) Pathology and personality theory, (3) Education Technology, (4) Behavior Change processes, (behavior modification and other effective counseling techniques), (5) Agency relationships, (6) Interdisciplinary team approach, (7) Perception and cognition, and (8) Learning theory. In addition, the student must complete a Specialist Project (6 hours) and may need six to eight credit hours of supervised professional field experience.
Special Education

Advisers: Joseph J. Eisenbach, Abraham W. Nicolaou, Donald F. Sellin

The Specialist in Education is offered to assist special education personnel in developing professional competencies in supervision and administration of programs and services for exceptional children and youth. Individuals applying for admission to this program will be expected to have completed sufficient courses to qualify for full approval to teach exceptional children and a minimum of two years of teaching experience in a special classroom setting.

Program requirements:

1. Twenty hours in core and related Education courses.
2. At least twenty hours in Special Education to include four to six hours in a field project or internship.
3. Twenty hours in related fields outside the College of Education such as Psychology, Anthropology, Sociology or similar disciplines.
4. Evidence of leadership potential to be presented at the time of the admission interview.

SPECIALIST IN ARTS PROGRAM

In addition to the Specialist in Education programs, The Graduate College offers a number of Specialist degree programs in other areas. With the exception of the Specialist in Librarianship, these programs have been planned to prepare community college teachers. Each requires sixty hours of graduate level preparation. Students entering with a Master’s degree may be allowed up to thirty hours toward their sixty hours requirement provided the work taken previously meets the objectives of the Specialist degree and is sufficiently up-to-date. Students entering the program in Librarianship must have a Master’s degree in Librarianship from a library school accredited by the American Library Association.

The basic plan for each program except Librarianship will include a minimum of forty hours of course work in the discipline involved, ten hours of professional preparation and the remaining ten hours in a related supportive area or areas. All Specialist in Arts students must complete one semester or two consecutive sessions in residence on the campus.

The professional preparation for those students planning to teach in a community college will include TEED 650, The Characteristics of the College Student; TEED 690, The Community College; TEED 699, Seminar in College Teaching; and a research course either in the student’s major field or in Education.

A student may enter each of these programs except Librarianship either upon completion of a Bachelor’s or Master’s degree. A student entering without graduate work must have achieved a grade point average of 2.6 for the last two years of undergraduate study. A student entering with graduate preparation must have a 3.25 average for all work completed at the graduate level.

A student entering a Specialist program must attain an acceptable score on the aptitude and advanced sections of the Graduate Record Examination. A student
entering the program in Business must also take the Admission Test for Graduate Study in Business.

A student should arrange for a personal interview with an adviser of the program he plans to enter.

Each student is expected to satisfy the requirements of his discipline with reference to a paper or project and to pass a final examination if one is required in his program.

The specific requirements of each program follow.

**Business Education**

The Specialist in Arts degree program in Business Education is designed to prepare community college teachers of business subjects. Students complete a program of study in the College of Business concentrating in an area of business taught in the community college. The exact division of course work in the College of Business and other University departments is determined by the student in consultation with his adviser.

**English**

The Specialist in Arts degree program in English is intended to prepare the candidate for teaching in the community and the four-year college. The student's program of studies is planned in consultation with the adviser to serve the student's needs and interests. The first year of the program encompasses the M.A. in English, and the student may apply for that degree when he has completed the requirements. The second year of the program allows for a concentration of studies in literary history, in literary theory, or in special literary problems. At the end of his work the candidate presents a substantial essay and takes a comprehensive examination. During the latter part of his studies he engages in a teaching internship under the supervision of a member of the English faculty or in a community college under appropriate supervision.

**History**

The Specialist in Arts degree program in History is designed to strengthen the historical preparation of teachers of History in the secondary schools and to prepare community college teachers of History.

Each student is expected to select three fields of concentration in History and one field of concentration in a related department approved by the graduate adviser. The fields in History are to be selected from the following: (1) Ancient, (2) Medieval, (3) Europe 1500-1815, (4) Europe 1815 to present, (5) United States to 1877, (6) United States since 1877, (7) Latin America, (8) Far East, (9) Russia and Eastern Europe, (10) Africa, (11) Special Areas. One of the three fields should be designated as a major field of concentration.
Although no specific number of hours is required in each field of concentration, the student will be expected to pass a written and oral examination in two fields of concentration during the semester in which he completes thirty hours of graduate work and in the other two fields during the final semester or session. Students must complete HIST 690, Historical Method; HIST 692, Studies in Historical Literature; and the professional work required by The Graduate College.

**International and Area Studies**

The goal of the Specialist in Arts programs offered by the Institute of International and Area Studies is to prepare competent undergraduate-level teachers, not research scholars. The programs are designed to prepare graduates who possess (1) a comprehensive knowledge of the data in their fields of specialization (either an area concentration or a comparative/cross-cultural concentration), (2) a level of methodological sophistication which will permit them to understand, interpret and analyze research findings in their fields of specialization, and (3) those teaching skills which will permit them to dispense competently their accumulated and accumulating knowledge to undergraduate-level students.

The Sp.A. in International and Area Studies is viewed as essentially terminal in nature; those students anticipating later doctoral-level study and careers as research scholars are advised to pursue that goal through disciplinary specialization and the degree sequence normally associated therewith.

Two distinct types of Sp.A. programs are available, both cross-disciplinary in scope and each reflect the rationale upon which it is based. The first program, designated Plan I, rests on the premise that certain crucial problems confronting developing societies are best examined in a comparative context, utilizing data drawn from contrasting cultural milieu. The theoretical and practical problems inherent in conflicting resolution, economic development, population control, diffusion and adaptation of modern technology, human resource development, public health, and directed social change—to name but a few—fall within this category.

Plan I, therefore, is designed to accommodate those students who desire to examine that broad range of problems the investigation of which requires both cross-disciplinary and cross-cultural perspectives.

Plan II programs are based on the premise that cultural or geographical areas, as these are defined by the conventions of contemporary scholarship, constitute legitimate, feasible and necessary topics of cross-disciplinary research, study and teaching. Plan II programs are thus designed to serve the interests of students wishing to focus their scholarly interest on the cross-disciplinary study of a single geographical area.

All Sp.A. programs administered by the Institute combine between two and three years of graduate study in a manner which provides the methodological tools of a particular discipline as well as a comparative/cross-cultural or area studies concentration. All programs therefore require that, in the process of obtaining the Sp.A., students satisfy all requirements for a Master of Arts degree in a traditional discipline. The disciplines in which the M.A. portion of the Sp.A. program may be taken vary from program to program.

A minimum of sixty semester hours of course work beyond the Bachelor's degree is necessary for completion of an Sp.A. in International and Area Studies. Based on the expectation that students entering these Sp.A. programs will possess widely varying prior preparation, those with limited background in international and
area studies may be required to take course work substantially beyond this minimum.

Students in both Plan I and Plan II programs may be required to elect during the first semester of study Social Science 606, Colloquium in International and Area Studies. During either the first or second semester of study, students in both Plan I and Plan II programs may be required to elect Social Science 605, Seminar in Area Studies.

Students in the Sp.A. programs administered by the Institute will have a Guidance Committee to assist in selecting course work and overall planning of their study program. This Guidance Committee must be organized during the first semester of study, and students should meet with their Guidance Committee at least once each semester throughout the duration of their program.

Students will solicit an Examination Committee near the conclusion of their study, the membership of which should reflect the content of their program. The Examination Committee will administer written and oral comprehensive examinations.

A Specialist Project is required of each student enrolled in one of these programs; the nature of this Specialist Project will be determined by the student in consultation with his Guidance Committee.

Plan I. Comparative/Cross-Cultural Studies

Fredric J. Mortimore, Adviser

Students who plan to enroll in the Specialist in Arts program with a Comparative/Cross-Cultural concentration must secure admission to the Institute of International and Area Studies as well as The Graduate College and the department in which they hope to complete the M.A. portion of this program.

Departments in which students electing a Comparative/Cross-Cultural emphasis may enroll for the M.A. portion of their program are limited to the following: Anthropology, Economics, Geography, Political Science, and Sociology.

Students enrolled in the Comparative/Cross-Cultural Specialist in Arts option are required to take Social Science 606, Colloquium in International and Area Studies, plus at least one Core Course from three of the following five departments: Anthropology, Economics, Geography, Political Science, and Sociology.

Students enrolled in this option of the Specialist in Arts program may also be required to take Social Science 605, Seminar in Area Studies: Africa, and Social Science 605, Seminar in Area Studies: Asia.

The Specialist Project, depending upon its nature, may require the acquisition of foreign language or other research skill.

Plan II. Area Studies

Africa

Fredric J. Mortimore, Adviser

Students who wish to pursue the Specialist in Arts program with an African concentration must secure admission to the African Studies Program as well as to The Graduate College and the department in which they plan to complete the M.A. portion of this program.
Departments in which students electing an African concentration may enroll for the M.A. portion of their program are limited to the following: Anthropology, Economics, Geography, History, Political Science, and Sociology.

Candidates for this Specialist in Arts degree must also complete at least one African Studies Core course from three of the following six departments: Anthropology, Economics, Geography, History, Political Science, and Sociology.

In addition to the departments in which students complete the M.A. portion of their Specialist in Arts program, they should also attempt to develop a secondary or "minor" concentration in a second department from the list of those in which the M.A. portion of their program may be taken. This concentration should consist of substantial course work in order to broaden the student's preparation for teaching.

The Specialist Project, depending upon its nature, may require the acquisition of foreign language or other research skill.

Asia

Robert L. Shafer, Adviser

Students who wish to pursue the Specialist in Arts program with an Asian concentration must secure admission to the Asian Studies Program, as well as to The Graduate College and the department in which they plan to complete the M.A. element of this program.

Cooperating departments in which students electing an Asian concentration may enroll for the M.A. portion of their program are limited to the following: Anthropology, Economics, Geography, History, Political Science, and Sociology.

Candidates for this Specialist in Arts concentration must also complete at least two Asian Studies Core Courses, from three of the following seven departments: Anthropology, Economics, Geography, History, Political Science, Religion, and Sociology.

The Specialist Project, depending upon its nature, may require the acquisition of foreign language or other research skill.

Latin America

Leila Bradfield, Adviser

Students who wish to pursue the Specialist in Arts program with a Latin American concentration must secure admission to the Latin American Studies Program as well as to The Graduate College and the department in which they plan to complete the M.A. portion of this program.

Departments in which students electing a Latin American concentration may enroll for the M.A. portion of their program are limited to the following: Anthropology, Economics, Geography, History, Political Science, and Sociology.

Candidates for this Specialist in Arts concentration must also complete at least two Latin American Studies Core Courses from three of the following six departments: Anthropology, Economics, Geography, History, Political Science, and Sociology.

The Specialist Project, depending upon its nature, may require the acquisition of foreign language or other research skill.
Librarianship

The Specialist in Librarianship program is designed to prepare librarians for administering school media centers for either the individual school or school system, or for administering libraries in community colleges or for leadership in public library services. Each program will require at least thirty hours of graduate study beyond a Master's degree in Librarianship from an American Library Association accredited library school and one year of successful library experience. A course in research methods at the post baccalaureate level, participation in individual research and professional experience, and a specialist paper are required.

Administration of the School Media Center: The curriculum is planned to provide that balance of the individual student's background in the professional library areas which is necessary to equip him to serve K-12 programs through school media centers. The student's program will include courses in educational supervision and curriculum, management and systems analysis, educational media and communications, computers and data processing.

Administration of Community College Libraries: The curriculum is planned to enhance competencies in the various areas touching on the administration of the community college library. These will include work in such fields as communications, education, management, and media, as well as the areas falling specifically in the realm of librarianship.

Public Library Service: The curriculum is planned to provide the necessary professional background for public library administration at the systems level. There will be additional work in such fields as management and systems analysis, mass media and communication, computers and data processing, political science and sociology.

Mathematics

The Specialist in Arts in Mathematics program is designed to prepare community college and liberal arts college teachers of mathematics. Special options are available to provide advanced study in Statistics or Applied Mathematics to prepare students for work in industry or government positions. Students entering the program must have completed the equivalent of an undergraduate major in mathematics. The student's program is oriented to a rather broad spectrum of mathematics and is planned in consultation with members of the Specialist Committee of the Department of Mathematics. The first part of the program is devoted to satisfying the requirements for a Master's degree in mathematics and the student may apply for that degree upon completion of the requirements.

As soon as the student's program is outlined and his course work partially covered the student is expected to take the Departmental Graduate Examination in Linear Algebra (530), Foundations of Analysis (571), and General Topology (520). Later in his program, but as early as his course work is completed, the student has to take Preliminary Examinations for this Specialist Degree. This will consist of three exams: Analysis: Measure and Integration (670); and Complex Analysis I (676); Algebra: Abstract Algebra I (630); and an approved elective at the 600-level. Each student's program for the Sp.A. must include MATH 656, at least one course in computers, and at least one course in applications of mathematics. A
committee will be named to advise the student on the preparation of the Specialist Project paper, and to conduct the final examination.

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships, University Fellowships and Associateships, and other fellowships. Individuals desiring further information about such opportunities, or about the graduate program as a whole, should contact the Department Chairman, or one of the Program Advisers.

Science Education

Paul E. Holkeboer, Adviser

The Specialist in Science Education Program is designed to prepare community college teachers of science. The following options are available in this program: Biological or Life Science, with course work in Biology, Chemistry and Education; Earth Science, with course work in Geology, Physics and other sciences, and Education; Environmental Science, with course work in Biology, Chemistry, Geology, and/or Physics with specialization in environmental studies and also courses in other selected areas and Education; Physical Science, with course work in Chemistry, Physics and Education.

Each student's program will be planned in consultation with the Coordinator of Graduate Science Education and a representative of the major science area. The course work will be planned to prepare community college teachers of one of the areas listed above, in addition to lower division science courses. For example, a student electing the Physical Science option will be prepared, upon completion of the program, to teach Physical Science courses and lower division courses in Chemistry or Physics, depending upon his area of concentration. In all of the options the student will be required to take work from more than one Science area and also in Mathematics where necessary. The maximum credit in Mathematics given within the program may not exceed twelve hours. The program generally includes between forty and forty-four hours of graduate level work in the sciences, including supporting mathematics where necessary. The professional Education courses required are described under the general requirements for all Specialist in Arts programs. Each student is expected to complete a Specialist Project. This project may be done in either the major science area or in Science Education and must be done under the direction of a faculty adviser and a committee. Students in this program are required to make an oral presentation of their project.

In addition to the admission requirements of The Graduate College, students must have an undergraduate major in one Science (area of concentration) and ordinarily a minor in a second science. It is possible to make up undergraduate deficiencies after admission.
SECTION IV

Doctoral Degree Programs and Requirements

Western Michigan University's Graduate College offers doctoral programs in five areas. Four, Chemistry, Mathematics, Sociology, and Science Education, lead to the Doctor of Philosophy degree and the fifth, Educational Leadership, involves study toward a Doctor of Education degree. Each program involves approximately three calendar years of study of which at least one complete year must be spent in full-time study on the campus.

Each student's program will be planned by a committee selected in consultation between the student and the graduate adviser of the program in which he wishes to study. A student will be expected to register for at least ninety hours of graduate level work while completing his program. The exact distribution of that ninety hours among courses, seminars and research will depend upon the program and will vary from one student to another. Each program, however, will contain a significant amount of research and each student will be required to register for and prepare a dissertation for fifteen hours of graduate credit.

A student will be expected to select two appropriate research tools. The decision regarding the specific research tools must be made by the student's doctoral committee. If the committee wishes to recommend research tools other than languages, computer programming or statistics they must identify their recommendation and the standard of proficiency expected for the approval of the Graduate Dean. Appropriate competency in language, statistics and computer programming has been established by the Graduate Studies Council.

A student will be allowed a period of seven years from the date of admission to complete all the requirements for the degree. Under extenuating circumstances, additional time may be allowed by The Graduate College.

A student will be expected to pass those examinations established by the unit in which he is studying. In all cases these examinations will include comprehensive examinations of the subject matter areas included in the student’s program of study and a final oral examination.

GENERAL REQUIREMENTS FOR A DOCTORAL DEGREE

1. Admission—(See Calendar of Events for application deadline.)
   a. See specific program description to determine the minimal entrance requirements.
b. Transcripts of all courses taken beyond high school showing the degrees earned.

c. For students who have completed at least twenty hours of graduate work, a point-hour ratio of at least 3.25 for all graduate work undertaken beyond the Bachelor's degree. The student who has a Bachelor's degree and less than twenty hours of completed graduate work needs an overall 3.0 point-hour ratio in undergraduate work and a 3.25 for all completed graduate work.

d. Names and addresses of three references who may be consulted and an autobiography of at least two typewritten pages.

e. Attainment of satisfactory scores on the Aptitude and Advanced Tests of the Graduate Record Examination or an examination of a similar nature approved by the Graduate Studies Council. A satisfactory score usually is considered to be one that is at the 50th percentile or better.

f. Attainment of a satisfactory score on the English Qualifying Examination. A non-credit English course must be passed by students failing the English Qualifying Examination. This requirement is waived for a student with an advanced degree.

g. Admission by both The Graduate College and the unit offering the doctoral program.

2. Applicancy

a. A student admitted with less than twenty hours of graduate study must request status as an applicant after completing two full semesters of graduate work on campus or twenty semester hours of graduate work beyond those accumulated at the time of admission, whichever comes first. A student should present this request to his adviser who will submit a recommendation to The Graduate College.

b. A student admitted with more than twenty hours of graduate study must request status as an applicant after completing one full semester of graduate work on campus or forty semester hours of graduate work completed, whichever comes first.

c. Criteria for being awarded status as an applicant include:

   1) An overall point-hour ratio of 3.25 in all graduate work completed.
   2) Commitment to a specific degree program.
   3) Appointment of a doctoral committee.
   4) A decision by the unit that the student should be permitted to continue his study toward a doctoral degree.

3. Candidacy

A student who is an official applicant for a doctoral degree must seek candidacy no later than the end of the second calendar year or its equivalent and meet the following requirements:

a. An overall point-hour ratio of 3.25 in all graduate work completed.

b. Completion of all basic course requirements.

c. Completion of the research tool and/or language requirements.
**Doctoral Degree Programs**

d. Successful completion of the comprehensive examinations established for the program.

e. Endorsement by the Doctoral Advisory Committee of the plan for the student's dissertation.

4. Graduation—(See Calendar of Events for Application deadline.)

a. Completion of a minimum of ninety hours of courses, seminars, research, and other requirements including fifteen hours of dissertation with an overall point-hour ratio of 3.25.

b. Three years of study of which at least one academic year must be spent in full-time study on the campus.

c. Students will be allowed a period of seven years from the date of admission to complete all the requirements for the degree. Under extenuating circumstances, additional time may be allowed by The Graduate College.

d. Approval of the dissertation by three members of the Doctoral Advisory Committee, including one representative of the Graduate Faculty from outside the major department. The dissertation must be in a form acceptable to the unit and The Graduate College. In writing his dissertation, a student should consult the most recent edition of *Specifications for Masters' Theses, Specialist Projects, and Doctors' Dissertations*, available in the Campus Bookstore.

e. Satisfactory performance on the doctoral examination.

**PROGRAMS LEADING TO A DOCTORAL DEGREE**

**Chemistry**

Don C. Iffland, Adviser

The Ph.D. program in Chemistry at Western Michigan University is a flexible one which may be tailored to the needs of the individual. Of the total program of ninety semester hours, a thirty-two semester hour minimum in course work is required, with the remainder of the program set up by the student and his doctoral advisory committee. Some students may take a relatively large number of courses, and others, relatively few. All will be expected to participate in seminars and colloquia to assure that the attainment of knowledge and sophistication in chemistry is achieved. A thorough and substantial piece of original laboratory research will constitute the basis for the dissertation.

All students admitted to the Ph.D. program in Chemistry must have passed three qualifying examinations, one in each of the fields of analytical, organic, and physical chemistry (See page 25 for Schedule).

Proficiency in two research tools will be required of candidates for a Ph.D. in Chemistry; one of which is a foreign language ordinarily selected from German, Russian and French. For details on the other research tool consult the Chemistry
adviser. All chemistry students are expected to have completed MATH 223, Mathematics IV or its equivalent and many students, particularly those in physical chemistry, will take more advanced mathematics courses.

A student entering with a Bachelor's degree shall complete the following courses or their equivalents (if not completed as an undergraduate) as requirements for the Ph.D. degree: (a) CHEM 601, Graduate Seminar; (b) CHEM 505, Chemical Literature; (c) CHEM 506, Chemical Laboratory Safety; (d) CHEM 520, Instrumental Methods in Chemistry; (e) Six 600-level courses from at least three divisions including two courses from the division of his research and dissertation and two courses from a second division of chemistry; (f) at least one physical chemistry course (chosen from among Advanced Physical Chemistry, Chemical Kinetics, and Chemical Thermodynamics) if not included in (e); and (g) other courses and research and dissertation to give a total of ninety hours.

After a student completes eighteen hours of courses (other than CHEM 601, 505, 506) for graduate credit, he will be evaluated by a committee of the Department of Chemistry for continuance in the Ph.D. program (i.e., for status as an "Applicant"). Students entering with a Master's degree will normally undergo this evaluation after about one semester of additional work.

The student will prepare a plan of study in consultation with his major adviser and other members of his doctoral advisory committee. This plan of study shall include seminars and research and shall insure reasonable breadth for maturity as a Ph.D. candidate. Ordinarily this will include as a minimum a third and fourth three-hour course in the area of the research.

At approximately the end of the second year of graduate study in Chemistry, the critical comprehensive written and proposition-type oral examinations in the area of the student's dissertation are taken.

Educational Leadership

Advisers: Harold W. Boles, James A. Davenport, Dorothy McCuskey, Ted Ploughman, Rodney W. Roth, William P. Viall, Donald C. Weaver

The College of Education offers, through the Departments of Educational Leadership and Counseling and Personnel, and with the cooperation of numerous other departments, a doctorate in Educational Leadership which has some unique features. This Doctor of Education degree is designed to prepare educators of personal and professional stature who are knowledgeable and competent to exercise leadership in education. A variety of educational experiences is arranged to educate qualified students in the technical, conceptual and human skills required of all educational leaders and administrators, without regard for their particular assignments. In this program, educational leadership is conceived as a cognitive professional activity which demands an appropriate knowledge of the leadership process in educational agencies of our society, and a high degree of competence in human relations.

The doctoral program is an integrated program of courses, seminars, internship experience and dissertation production designed to meet the developing needs and goals of each student.

Following his application for admission to The Graduate College, each student will be notified whether he is accepted after he has taken the Graduate Record Examination, his scores have been received, and he has been interviewed by a
screening committee representing both The Graduate College and the Department. Each student accepted will work with the department chairman to have an adviser and two committee members appointed. These persons will be selected in terms of the student’s professional interests, and will work with him in outlining an individualized and multidisciplinary program of studies for him to pursue, constituted from departmental and other offerings in these focal areas:

- 14 hrs. in Administration and Supervision
- 15 hrs. in Human Relations
- 20 hrs. in Concept Formation
- 27 hrs. in Research
- 9 hrs. in Independent Study (internships)
- 5 hrs. of electives.

90 hrs. minimum Total

At least twenty hours of the ninety hour minimum must be outside the College of Education. Whether credits earned in another degree program will be allowed will be determined by the adviser on an individual basis.

Curricula available within this degree program include:

Line Administration—intended to prepare a person for a position as a superintendent or assistant superintendent of a school district; a principal of a primary, elementary, middle, junior high, senior high school; or as a central administrator in an institution of higher education or other post-high school educational agency.

Staff Administration—intended to prepare a person for a position as a coordinator, director, or supervisor of Business Affairs, Finance, Personnel, special service (such as Research) in public or private schools, colleges, or universities.

Program Leadership—intended to prepare a person for a position as a Director of Training and/or Management Development in the armed forces, business, government, industry, a professional association, or a trade union; or a director or coordinator of educational programs in a social welfare agency.

Also within this degree program is a curriculum in Counseling and Personnel.

Counseling and Personnel


The Doctor of Education degree in Counseling and Personnel prepares leadership personnel for positions in schools, colleges and universities and lay institutions and agencies. This unique program is particularly suited to individuals who intend to provide leadership involving:

1. Pupil Personnel Services in Schools
2. Student Personnel Services in Higher Education

*Because of the different emphasis, the program for a Director of Curriculum may have a minimum of eleven hours in each of the Administration and Supervision and Human Relations areas.*
3. Counselor Education and Supervision, and
4. Agency Personnel Administration

The department is committed to the belief that its resources, materials, and efforts should be invested in the preparation of leadership personnel equipped with sound practitioner skills. Courses, seminars, field experiences, research projects and independent study are arranged to provide the technical, conceptual and human relationship skills necessary for effective professional leadership. Therefore, the program fosters a close relation between the doctoral student and the faculty.

The Doctor of Education degree is designed to prepare leaders possessing outstanding professional and personal characteristics. Leadership in counseling and personnel is conceptualized for purposes of this program as: line administration, staff administration, program development, theory building, and research innovation. The doctoral program is an integrated program designed to meet the developing needs and goals of each student in the area of:

- Administration-Supervision
- Counseling and Personnel Education
- Internships
- Research Experiences
- Cognate Studies

From the viewpoint of the Counseling and Personnel faculty, education is a highly complex multi-disciplinary process. This process is individualistic in nature and thus, an academic program in the department must be sufficiently flexible to accommodate individual differences and interests while at the same time retaining a sound academic core of professional preparation.

Application for admission to the Ed.D. degree program must be made to The Graduate College. Admission to the program is contingent upon satisfactory scores in the Graduate Record Examination and the recommendations of a screening committee representing both The Graduate College and the Department of Counseling and Personnel.

When a student is notified of admission to both The Graduate College and the Department, the student is informed that the Department Head will serve as adviser until the student becomes sufficiently familiar with the faculty to select a committee Chairman. In most cases, the selection of a Chairman should be made during the first semester on campus. The student and Chairman will, as soon as practicable, recommend to the Department Head no fewer than two additional members for the Doctoral Committee, to include:

a. One member with special competence in research, and
b. One member from outside the College of Education, who is a representative of the Graduate Faculty.

Whether credits earned in another degree program will be allowed will be determined by the student's chairman and The Graduate College.
Mathematics

The Ph.D. program in Mathematics is designed to give the student a broad but intensive background in a variety of fields of mathematics, with special emphasis on some selected area in which the student will be prepared for, and participate in, creative mathematical research.

A student may enter this program with a Master's degree or directly upon completion of a Bachelor's program. In addition to satisfying the general admissions requirements of The Graduate College, the student must have acquired a sufficient level of mathematical training with satisfactory grades as determined by the Department Doctoral Committee. Upon entrance to the program the student is assigned an adviser who assists him in planning his program until he reaches the stage of having a Dissertation Adviser appointed.

As early as possible in his program the student must pass the Departmental Graduate Examinations in Linear Algebra (530), Foundations of Analysis (571), and General Topology (520). In addition, each student must complete the following basic course requirements: (1) two-semester graduate sequences in Algebra, Real Analysis, and Topology, and a semester course in Complex Analysis; (2) one approved graduate sequence in some area other than those specified in (1); (3) one approved graduate course in Applied Mathematics, Probability, or Statistics. The balance of his program will consist of advanced courses, seminars, and research, leading ultimately to a dissertation constituting a significant contribution to some field of mathematics.

Each student must pass the Departmental Preliminary Examination, which consists of three-hour written examinations in Algebra (630, 631), Analysis (670, 671, 676), and Topology (620, 621). However, with the approval of the Doctoral Committee, either Algebra or Topology may be replaced by the major area of a student concentrating in a field outside of these three. A student must take each Preliminary Examination the first time it is offered following his completion of the required course work in that field. If the student fails an examination, he may be permitted to take a second examination in that area at a time designated by the Committee. A student may not take any part of the Preliminary Examination more than twice. A second failure in any area results in dismissal from the doctoral program. After successfully completing this Examination the student is assigned a Dissertation Adviser and a Dissertation Committee who supervise his final research and dissertation.

In accordance with the requirements of The Graduate College, each student is required to attain competency in two research tools. Normally these will consist of two foreign languages selected from French, German, and Russian. One of these may be replaced by demonstrated competence in computer usage, subject to approval of the Doctoral Committee.

Many Mathematics Ph.D.'s will eventually take a position which involves some teaching commitment. Thus, as part of his training, each applicant will instruct a sophomore or junior level college mathematics course (under the guidance of a faculty member), and will participate in faculty discussions on college mathematics teaching and curricula.

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships, University Fellowships and Associateships, and other fellowships. Individuals desiring further information about such opportunities, or about the program as a whole, should contact the program adviser.
Science Education

Paul E. Holkeboer, Adviser

The Ph.D. program in Science Education is a broad science program requiring graduate work in three science areas. The program is designed to give depth in one science area, selected from Biology, Chemistry, Earth Science and Physics, and breadth in all the science areas in order to prepare graduates of the program to be (1) science supervisors, directors of science instruction or heads of science departments in large school systems or in state departments of education or (2) college instructors who are likely to teach science methods courses, science courses in National Science Foundation Institutes designed for science teachers who have less-than-adequate training in the science and general education interdisciplinary science courses or (3) college teachers of science methods courses and supervisors of student teachers of science or (4) researchers in the area of Science Education. There are of course, other career opportunities which consist of combinations of some of the above, such as, a college teacher of science methods courses and a researcher in Science Education.

All students will be expected to meet the regular requirements for admission and residence established by The Graduate College. In addition, admission to take work toward the doctoral degree in Science Education will require an undergraduate major in one science and ordinarily an undergraduate minor in a second. Students entering with less than these requirements will be expected to complete them at the undergraduate level.

The program leading to the Ph.D. degree in Science Education requires the equivalent of ninety hours of graduate credit. Individual programs are planned by the Coordinator of Graduate Science Education and the student after consultation with faculty representatives from the various science departments and the College of Education. The ninety hours of graduate credit is divided into the following categories:

Science: Twenty hours of graduate credit in one of the following sciences: biology, chemistry, earth science or physics.

Twenty hours of graduate credit in two other sciences (ten hours in each).

Professional Education: Twenty to twenty-one hours of graduate credit

Dissertation: Fifteen hours

Seminar: Four hours

The remainder of the program will consist of research leading to the dissertation (GRAD 730) and additional work in science and/or education if desired. Students are also required to demonstrate competency in two research tools and this is usually done by satisfactorily completing one or two courses in each research tool area. The two research tools generally elected by students in this program are statistics and computer science.

In addition to graduate work in three sciences students are required to have had completed two semesters of undergraduate work in the fourth science. Also, an undergraduate minor is generally required in order to take graduate work in a science. Undergraduate deficiencies may be made up after admission to the doctoral program.

At approximately the end of the second year of full-time graduate study or at the time most of the course work is completed, the student will take the Com-
Prehensive Examinations. The examination consists of two parts, one of which is a written and the other an oral. The written part of the examination consists of two sections, one over the science areas studied and the other over the area of Science Education. Each of these is a four-hour examination and they are given approximately one week apart. The oral examination consists of the presentation and defense of an original research proposal other than the research being completed for the degree.

The research and dissertation are completed under the direction of a major adviser and a committee. The major adviser is selected by the student and the committee members are selected by the student in consultation with the major adviser. About one-third of the program is devoted to research and students are encouraged to begin their research as early in their program as possible. The research problem generally is formulated by the student and is in some area of Science Education.

To be admitted to candidacy for the doctoral degree, the student will be expected to have completed the course work, the research tools, the comprehensive examination and also two years of successful teaching at the elementary or secondary level in addition to the other requirements of all doctoral degree programs.

Sociology

The Ph.D. program in sociology is designed to prepare students for careers in sociological research and teaching. The program provides broad training in sociology through a wide variety of courses and research experiences. A basic feature is the core training in general sociology, theory, research methods, and social psychology. Specialization is required in three areas of sociology. Two are selected by the student from the departmental areas of concentration: sociology of education, sociology of social problems, comparative sociology, and social psychology. A third area of individual specialization is chosen by the student with the approval of the student's doctoral committee.

Eligibility for Admission with Bachelor's Degree

1. Applicants must have a grade-point average of 3.25 in fifteen or more semester hours of sociology courses, including courses in theory and research methods.

2. Applicants must have an overall grade-point average of 3.00.

3. Applicants must present Graduate Record Examination scores, and have strong academic qualifications.

4. Three letters of recommendation, from academic or professional sources, must be sent to the departmental Graduate Admissions Committee.

Degree Requirements for those Admitted with Bachelor's Degree

1. Complete approximately ninety hours of graduate courses, including thesis and dissertation credits.

2. Complete all requirements for the Master's degree including a thesis.

3. Demonstrate competence in two research tools selected from: a foreign
language other than English, research methodology, statistics, computer programming.

4. Complete core area and dissertation requirements, as specified in the departmental Graduate Student Manual.

Eligibility for Admission with Master’s Degree

1. Applicants must have a grade-point average of 3.25 for all course work taken for graduate credit.

2. Applicants should have, or be completing, a Master’s degree in sociology.

3. Applicants who hold a Master’s degree in a related field may be admitted to the program but will be required to make up deficiencies without credit.

4. Three letters of recommendation, from academic or professional sources, must be sent to the departmental Graduate Admissions Committee.

Degree Requirements for those Admitted with Master’s Degree

1. Complete approximately sixty hours of course and dissertation credits, beyond Master’s work, selected in consultation with the doctoral adviser.

2. Demonstrate competence in two research tools selected from: a foreign language other than English, research methodology, statistics and computer programming.

3. Complete core area, and dissertation requirements, as specified in the departmental Graduate Student Manual.

Financial Support

A number of departmental, university, and governmental assistantships, fellowships, and associateships are available to qualified students. Training opportunities and part-time employment are also available through the facilities of the Center for Sociological Research. Faculty associated with the Center have conducted studies of education, mental illness, marital roles, race relations, group dynamics, deviant behavior, comparative institutions, and numerous other topics. Graduate students frequently participate in these studies. Additional information and application forms may be obtained from the departmental administrative assistant.
Section V

Description of Graduate Courses

College of Applied Sciences

W. CHESTER FITCH, Associate Dean

Graduate Offerings:
Applied Science
Agriculture
Distributive Education
Electrical Engineering Technology
Engineering and Technology
Home Economics
Industrial Education
Mechanical Engineering Technology
Occupational Therapy
Paper Science and Engineering

The College of Applied Sciences offers graduate programs in Engineering Technology, Home Economics, Occupational Therapy and Paper Science and Engineering, and cooperates with the College of Education in providing Master’s degree programs in Teaching of Distributive Education, Teaching of Home Economics and Teaching of Industrial Education.

**Applied Science (AAS)**

Fitch, Associate Dean; Professor Kahrman; Associate Professor Johnson, Assistant Professor Klein

**Open to Upperclassmen and Graduate Students**

520 Principles of Vocational Education 3 hrs.

A study of the inter-relationships, place, and function of the practical arts and vocational education in a total education program. For teachers of agriculture, business, home economics, industrial and office subjects, and administrators.

**Open to Graduate Students Only**

600 Introduction to Technology 3 hrs.

A study of the development, role, philosophy, social responsibility, and current trends in technology. Changes in technical education, engineering, and industrial organization in American technology are emphasized.

605 Studies in Technology 1-4 hrs.

A course designed to take advantage of opportunities offered through industry in the form of technical workshops, seminars, short courses, or field research offered on campus or in industry. If field research is utilized as a source of study, emphasis will be placed on solving a given industrial problem under the supervision of a member of the Graduate Faculty. Prerequisite: Consent of instructor and Dean’s Office prior to registration.

622 Occupational Laboratory Experience 2-3 hrs.

A supervised industrial experience program involving full-time employment for at least one semester. Students will study and participate in experiences in a specific occupational area. Prerequisite: Consent of instructor and Dean’s Office prior to registration.

625 Administration and Supervision of Practical Arts and Vocational Education 2 hrs.

The functions of administration and supervision; problems involved in the
organization and operation of practical arts and vocational education programs. For
administrators, supervisors of vocational education and those wishing to prepare for
such positions.

626 Trends in Technology and Employment 2 hrs.
Major occupational shifts resulting from recent advances in science and tech-
nology. The changing nature of the labor force, economic and sociological implica-
tions of automation and atomic power. Attention will be given to educational
programs needed to meet technical and skilled manpower requirements.

627 Occupational Selection and Training 3 hrs.
Primarily designed for vocational-technical teachers and administrators. Spe-
cial emphasis on adapting instruction to individual needs of disadvantaged and other
groups. Job clusters vs. specific training; orientation and selection of students;
program evaluation and placement of trainees.

628 Seminar in Vocational Education 2-6 hrs.
An intensive study of problems related to vocational education. Topics vary
from semester to semester, and a student may take more than one topic. See
schedule for specific topical offerings and credit hours in any one semester or
session. Typical topics offered include: (a) Research in Vocational Education; (b)
Vocational Course Development. For teachers, coordinators, and administrators
who have completed at least fifteen hours of graduate credit.

**Agriculture (AGR)**

Open to Upperclassmen and Graduate Students

520 Soil Science 2 hrs.
Treats soil as an organic resource. Soil formation, composition and classifica-
tion are related to various physical, chemical and biological factors in the environ-
ment. Consideration is given to soil fertility, water retention and runoff, plant
growth and land use as they are affected by these factors.

**Distributive Education (DED)**

Open to Upperclassmen and Graduate Students

500 Seminar in Distributive Education 2-4 hrs.
An intensive study of problems related to distribution and education for dis-
tribution. This seminar is especially recommended for seniors and graduates in
Distributive Education.

570 Organization and Operation of Distributive Education 2 hrs.
Deals with the organization and operation of distributive education in relation
to the total educational program. It is concerned with preparatory, cooperative and
adult programs. Consideration is given to advisory committees and local, state and
federal relationships.
571 Curriculum Development in Distributive Education 2 hrs.
This course provides for mastery of the techniques and skills necessary for curriculum development in the high school, community college, area vocational center and adult education programs. Recommended for cooperative teacher coordinators.

572 Teaching Techniques in Cooperative Education 2 hrs.
This course deals with the methods and techniques used in teaching the related subjects to students on cooperative work-study programs. Special emphasis will be given to group and individual methods of instruction.

573 Coordination Techniques in Cooperative Education 2 hrs.
This is a study of the duties and responsibilities of the coordinator. Includes the organization of training programs, supervision of trainees on the job and the development of working relationships among the school, business and home.

598 Readings in Distributive Education 1-3 hrs.
Directed, individual study of topics and areas of interest which are not otherwise treated in departmental courses. Consent of Department Chairman.

Open to Graduate Students Only—Please refer to The Graduate College section for course description

710 Independent Research 2-6 hrs.

Electrical Engineering Technology (EET)
Hesselberth, Chairman; Professor Wilcox; Associate Professors Davis, Vanderkooi

Open to Upperclassmen and Graduate Students

510 (542) Advanced Circuits 3 hrs.
Advanced circuit analysis, steady state and transient responses, writing and solving integrodifferential equations by classical methods and by Laplace transforms, network theorems. Fourier series analysis, complex frequency, poles and zeroes. Prerequisite: EET 310.

530 (545) Electrical Power Systems 3 hrs.
Engineering considerations of generating equipment, transmission and distribution systems, switch gear and industrial power distribution. Prerequisite: EET 330.

560 (541) Electrical Fields 3 hrs.
Electrostatics, including such topics as Coulomb's Law, Gauss' Law, Maxwell's equations, Laplace's and Poisson's equations, Faraday's Law, Stoke's Theorem, Ampere's Law. Use is made of vector calculus in rectangular, cylindrical and

Numbers in ( )s refer to courses listed in the 1972-73 bulletin as Engineering and Technology (ENGT) courses.
spherical coordinates. Prerequisite: EET 360 or MATH 223 or consent of instructor.

Open to Graduate Students Only

600 (640) Electricity-Electronics Seminar 2-3 hrs.
Studies of specific topics associated with the various aspects of electricity and electronics. Prerequisite: Consent of instructor.

610 (642) Network Synthesis 3 hrs.
Synthesis of passive networks in the frequency and time domain; Foster and Cauer forms of 2-terminal LC, RC and RL networks; Brune's method of RLC synthesis, Ladder networks, and approximation. Prerequisite: EET 510.

650 (646) Pulse Circuits 3 hrs.
Analysis and synthesis of switching, waveshaping, and control circuits. Prerequisite: EET 320.

660 (644) Microwave Techniques 3 hrs.
Coaxial lines, wave guides, oscillators, mixers, amplifiers, test equipment, and measurement. Prerequisite: EET 560.

697 Problems in Electrical Engineering Technology 1-6 hrs.
Special problems on individual need or interest under the direction of a member of the Graduate Faculty.

Engineering and Technology (IEGM)

Fitch, Chairman; Professors Beukema, Day, Nantz, Scott; Associate Professors Groulx, Pridgeon, Rayl, Stegman, Urich, Wichers, Wolf; Assistant Professors Boughner, Klein, Lindenmeyer

GENERAL ENGINEERING AND TECHNOLOGY

Open to Graduate Students Only

657 Studies in Engineering and Technology 3 hrs.
Advanced work organized around topics of current interest in engineering and technology. The specific topic will be shown in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

697 Problems in Engineering and Technology 1-6 hrs.
Special problems of individual need or interest under the direction of a member of the graduate faculty. May be elected with approval of department chairman and faculty member. Application must be submitted and approved prior to the election of the course. May be repeated up to maximum of six hrs.

Numbers in ( ) refer to courses listed in the 1972-73 catalog as Engineering and Technology (ENGT) courses.
INDUSTRIAL ENGINEERING AND SUPERVISION

Open to Upperclassmen and Graduate Students

500 Labor Management Relations 3 hrs.
Interplay among government agencies, labor organizations, and management. Particular emphasis is placed on collective bargaining procedures, issues, and applications through case studies. Not open to students with credit in IEGM 403.

502 Industrial Supervision 3 hrs.
The supervisor’s duties, obligations and responsibilities in his industrial role. The practical application of behavioral science principles to the industrial environment. Not open to students with credit in IEGM 402.

505 Advanced Methods Engineering 3 hrs.
Synthesis of effective work methods using a predetermined basic motion time system. Methods-Time Measurement, standard data system development and administration. Prerequisite: IEGM 305 or permission of instructor.

508 Advanced Quality Control 3 hrs.
Analysis and application of new concepts in the area of Quality Control. Tools of basic quality control and additional statistical parametric tools will be used in the solution of problems. Prerequisite: IEGM 308.

Open to Graduate Students Only

606 (602) Capital Budgeting for Engineers 3 hrs.
Concepts, principles, and techniques of making decisions pertaining to the acquisition and retirement of capital goods by industry and government. Topics include the time value of money, basic economic decision models, effect of taxation and depreciation on economic decisions, and capital allocation.

610 (604) Linear Programming for Engineers 3 hrs.
The formulation of linear mathematical models as applied to engineering problems. Solutions to linear programming problems are obtained by using appropriate algorithms. Sensitivity analysis techniques are presented and the significance of changes in the model are studied. Prerequisite: MATH 123.

611 Operations Research for Engineers 3 hrs.
Concepts and techniques of operations research with emphasis on industrial applications. Topics include queuing theory, inventory models, Monte Carlo simulation, game theory and dynamic programming. Linear programming is not included. see IEGM 610 (604). Prerequisite: MATH 360.

622 (605) Industrial Supervision Seminar 3 hrs.
An analysis of the writings, literature, and philosophy concerning line supervision and employee direction in manufacturing industries.

Numbers in ( ) refer to courses listed in the 1972-73 catalog as Engineering and Technology (ENGT) courses.
624 (603) Supervision of Industrial Training  
3 hrs.

The philosophy and responsibilities of the Industrial Training Director. Techniques and methods of evaluating training in industry. Administrative procedures to develop training programs in apprenticeship, presupervisory training, supervisory training, on-the-job training and other concepts of industrial training.

ENGINEERING GRAPHICS TECHNOLOGY

Open to Upperclassmen and Graduate Students

538 (554) Product Design and Development  
3 hrs.

The conceptual design and development of a product including the preparation of a working model. Product proposal, engineering documentation and engineering analysis of the product. Prerequisite: IEGM 438 or consent of instructor.

METALLURGICAL ENGINEERING TECHNOLOGY

Open to Upperclassmen and Graduate Students

572 X-Ray Diffraction  
3 hrs.

X-ray methods of crystal structure determination are applied to nondestructive testing, cold working, age hardening and phase changes in metal alloys. Prerequisites: MATH 123, PHYS 210.

573 Engineering Materials  
3 hrs.

Material selection for resistance to both load and environment. Design parameters for material selection and various metal systems. Corrosion, service failures and mechanical behavior of engineering alloys at high and low temperatures. Prerequisite: IEGM 376 or 373.

584 (574) Casting Design  
3 hrs.

Engineering design of castings based on stress analysis and capabilities of production casting processes. Prerequisites: IEGM 280, MET 256.

589 (579) Studies in Cast Metals Technology  
1-3 hrs.

Metallurgy of ferrous castings and melting, solidification, risering gating, ferrous castings, sand control and sand cases. Consent of instructor.

670 (650) Advanced Physical Metallurgy  
3 hrs.

Advanced topics in physical metallurgy including the classification and selection of metal alloy systems and heat treatment for engineering applications. Special emphasis on costs and the metallurgical factors that govern the mechanical and fabricating properties of engineering alloys.

Numbers in ( ) refer to courses listed in the 1972-73 catalog as Engineering and Technology (ENGT) courses.
Home Economics (H EC)

Parker, Chairman; Professors Brennan, Taylor; Associate Professor Holland

Open to Upperclassmen and Graduate Students

500 Advanced Textiles 2 hrs.
   The study of the composition, construction, finishing, and care of textiles. Prerequisite: H EC 101.

502 Textile Clinic 2 hrs.
   A workshop type program. Specialists and visual aids will present the newest information on textiles. To be followed by a study of methods implementing the new learnings. Prerequisite: H EC 101, or permission of instructor.

504 The Socio-Psychological Aspects of Clothing 2 hrs.
   A study of the social and psychological implication of clothing for the individual and the family. Clothing has many sociological and psychological implications for the person as an individual and as a member of society. This course would bring together some of the pertinent findings of these two fields as they relate to the total area of clothing, ranging from the individual’s selection of clothing as an expression of personality and social status to the impact of the clothing and fashion industries on the national economy.

508 Flat Pattern Design 2 hrs.
   A study of the drafting techniques employed in the flat pattern method for designing clothing. Prerequisite: H EC 101, 201, 304, or permission of instructor.

510 Advanced Nutrition 3 hrs.
   Study of recent developments in nutrition through readings and experiences. Prerequisites: H EC 114 and 210.

512 Institutional Management 3 hrs.
   Study of institutional administration, job analysis, labor policies, personnel problems and cost control in different types of food-service institutions. Prerequisites: H EC 114 and 210.

515 Marriage and Family in Later Years 3 hrs.
   A study of marital and family interaction in middle and later years.

518 Advanced and Experimental Foods 4 hrs.
   Concentrated study of principles of food preparation. Development of experimental techniques and opportunity for individual studies. Prerequisites: H EC 210, CHEM 120.

519 Experimental Foods Research 2 hrs.
   Individual research in chemical and physical properties of foods. Development of research studies, writing and reporting techniques. Prerequisite: H EC 518.

520 Equipment 2 hrs.
   A study of principles of equipment and demonstration as applied to the areas of home economics. Prerequisites: H EC 201 and 210 or consent.
552 The Homemaking Center and the Equipment  
2 hrs.
Consideration of fundamentals in planning laboratory and living area in terms of needs with special emphasis on built-ins, furnishings and equipment. Selected problems to be chosen by the individual.

598 Readings in Home Economics  
1-4 hrs.
Graduate students who have completed an undergraduate degree in Home Economics or related fields may enroll with permission of the head of the department to do supplementary work in a specific area to meet requirements for graduate courses.

Open to Graduate Students Only

600 Clothing Techniques  
2 hrs.
Planned to meet the needs of the advanced student in clothing construction techniques.

602 Tailoring Techniques  
2 hrs.
Specialized tailoring techniques in coats and suits. Problems in the use and performance of new textiles in clothing included.

604 Studies in Clothing and Textiles  
2 hrs.
A concentrated study of specifics within these fields dependent on the interests of the students.

606 Seminar in Home Management  
2 hrs.
Utilization of case studies and research findings for the purpose of analyzing and understanding home management. Through analysis of case studies, students gain insight into the principles of management and their application.

608 Seminar in Textiles and Clothing  
2 hrs.
A study and discussion of the background, current research and findings. Each student in the M.A. program in Home Economics would be required to take a minimum of two hours credit in seminar.

610 Studies in Foods and Nutrition  
2 hrs.
A concentrated study of specifics within these fields dependent on the interests of the students.

612 Seminar in Foods and Nutrition  
2 hrs.
A study and discussion of the background, current research and findings. Each student in the M.A. program in Home Economics would be required to take a minimum of two hours credit in seminar.

616 Consumer Education  
2 hrs.
Study on marketing problems and consumer credit. Students work on individual problems which concern the techniques of buying a specific type of consumer goods.

618 Teaching of Specific Subjects in Home Economics  
2-3 hrs.
An intensive study of problems in the specialized areas of Home Economics.
such as: Foods and Nutrition, Home Furnishings, Textiles and Clothing, Methods, etc. May be enrolled in more than once. Maximum credit not to exceed four hours.

636 Teaching for Independent Living 4 hrs.
Designed to provide a practical background and a basic understanding of problems found in the homes and communities of the home bound. This course will be concerned with general home problems related to management, personal adjustment and care of the family members.

640 Supervision of Home Economics 2 hrs.
New developments in the teaching of home economics and the supervision of student teaching will be studied. Problems of the student will receive major consideration.

642 Occupational Education 2-6 hrs.
Planning for Home Economics wage earning programs at the secondary and adult levels. (six areas.)

644 Curriculum Planning and Evaluation in Home Economics 2-4 hrs.
Consideration of changes in family living and society in relationships to the developmental needs of students as a basis for curriculum building in junior and senior high school. A study of the techniques of evaluation applicable in home economics. May be taken twice.

648 Adult Education in Homemaking 2 hrs.
A study of the developmental needs of adults and changes in society affecting families as a basis for developing adult programs in homemaking education.

650 Advanced Study of Home Management 2 hrs.
Emphasis on the philosophy, current concepts and methods of home management. Attention will be given to the newer aspects of time and motion study with special projects in work simplification. Analysis of the use of resources for achieving goals in stages of family life cycle. 

652 Family Life Education 3 hrs.
Designed to develop ways of implementing newer methods and techniques used in an effective homemaking program.

654 Housing 2 hrs.
A study of economic and social aspects of housing. Single, duplex and multiple housing problems are considered. Prerequisite: HEC 350.

660 Studies in Family Relations 2-3 hrs.
A concentrated study of the specifics within these fields dependent on the interest of the students.

662 Seminar in Family Relations 2-3 hrs.
A study and discussion of the background, current research and findings. Each student in the M.A. program in Home Economics would be required to take a minimum of two hours credit in seminar.
664 Seminar in Home Economics Education 2 hrs.
A study and discussion of the background, current research and findings. Each student in the M.A. program in Home Economics would be required to take a minimum of two hours credit in seminar.

666 Studies in Home Economics Education 2-6 hrs.
An investigation of certain areas in Home Economics education selected to meet individual needs of the students. May be taken more than once if subject matter is different.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.
710 Independent Research 2-6 hrs.

Industrial Education (I ED)
Feirer, Head: Professors Bendix, Kohrman, Lindbeck, Risher; Associate Professors Bruce, Farnan, Hutchings, Klammer, Rayford; Assistant Professors Atkins, Gheen

Open to Upperclassmen and Graduate Students

500 Furniture Production 2 hrs.
Design and production of furniture, including the development of all phases of tooling and jig and fixture design necessary for the mass production of a piece of furniture. Prerequisite: I ED 200.

502 Wood Technology 2 hrs.
Experience in the study of the technical aspects of cellulose materials and their use in construction and manufacture. Included will be a study of the characteristics of lumber, man-made wood products, the materials related to the fabrication of wood products, applied research done by the Forest Products Laboratory, and testing of materials. Prerequisite: I ED 100.

506 (306) Residential Building Construction 3 hrs.
A course designed to cover rough framing of a residential building including prefabrication methods as well as on-site building. Classroom work and laboratory experiences to familiarize students with excavating, foundations, floor, and roof framing, exterior doors, windows, roofing, siding, and preparation for interior wall coverings, trim and cabinets. Prerequisites: I ED 100 or 200, and 405 (can be taken simultaneously).

507 (301) Finish Carpentry and Cabinetmaking 3 hrs.
This course is designed to include finished carpentry such as built-in cabinets, and the installation of prefabricated cabinets. It will also include wall coverings, finished flooring, floor coverings, fitting and hanging doors, interior trim and interior painting and finishing. Prerequisites: I ED 100 or 200.
College of Applied Sciences

508 Related Building Trades 3 hrs.
Covers areas related to residential building construction, masonry, concrete work, ceramic tile installation, electrical wiring, plumbing, building sheet metal work, and environmental control. Prerequisite: I ED 506.

520 Architectural Graphics 3 hrs.
A graphical study of architectural details and methods of construction relative to frame and masonry veneer residential dwellings. Emphasis placed on residential planning and design principles. Each student required to design a single-family dwelling including preliminary studies, floor plans, elevations, all necessary details, plot plan, specifications, and cost estimate. Drawings will be reproduced. Prerequisites: I ED 120, or equivalent, and 405 (can be taken simultaneously).

522 Laboratory Practices in Drafting 2 hrs.
A course in the methods and problems of teaching drafting and graphics on the secondary and post secondary level. In addition, emphasis is placed on a review of secondary and collegiate texts, resource materials, problem design and checking of drawings. Prerequisite: twelve hrs. in drafting, and junior classification.

524 Commercial Architectural Design 2 hrs.
A course designed to give basic experience in designing light commercial structures. Emphasis will be placed on planning, traffic flow, exterior design, materials, and structural details. Prerequisite: I ED 520 or equivalent.

525 Architectural Perspective and Rendering 2 hrs.
An intensive study of angular and parallel perspective. Emphasis will be placed on entourage and rendering techniques in preparing architectural presentation drawings. Prerequisite: I ED 520 or equivalent.

538 Problems in Metalworking 2 hrs.
Practical laboratory experiences in forging, foundry, heat treating, machine shop, and arc and acetylene welding. Course will emphasize methods of selecting and developing course materials for junior and senior high school students. Course content will be adapted to meet the needs of individual students. Prerequisite: I ED 234.

540 Technical Education Methods 3 hrs.
A course dealing with an analysis and methods of organizing instruction in technical education. Methods of determining objectives, making analysis of instructional units, and developing them into a teaching plan will be emphasized. Consideration will be given to organizing educational programs within industry.

545 Safety Education for Industrial Teachers 2 hrs.
A basic course covering the fundamentals of accident prevention in Industrial Education laboratories, treating legal responsibility of teachers, safety requirements in relation to equipment, safe guarding, and safe operation.

551 Halftone Photo Processes 3 hrs.
A laboratory course stressing halftone reproduction and related photo techniques. Posterization, duotones, basic color, and mechanical dropouts will be included. Prerequisite: I ED 350.
552 Estimating 2 hrs.
Continuation of Estimating 452 with special emphasis on the use of Printing Industry Production Standards in the pricing of printed materials. Prerequisite: I ED 452.

553 Printing Production Management 3 hrs.
A study of the managerial procedures used in the printing industries to forecast, plan, schedule and record production and to control production costs. Hourly costs for various types of printing machines will be developed by students in this course.

560 Electricity-Electronics for Teachers 2 hrs.
Designed for junior and senior high school shop and laboratory teachers of electricity and electronics. Emphasis will be placed on new methods and materials. Laboratory practice will be provided in applying new techniques and development of teaching projects in electricity and electronics. Industrial Arts and science teachers should find this workshop quite valuable in the light of our increasing technological development.

570 Arts and Crafts Techniques 2 hrs.
Advanced laboratory experiences in the field of internal plastic carving, leather work, model work, archery, photography and related crafts in conjunction with a study of current technical literature in these areas. Written reports will be required. Course content will be adapted to individual needs.

572 SI Metric Mathematics 3 hrs.
A study of base ten units used in the SI Metric system of measurement. Included will be the mathematics used for the base units of metre, kilogram, celsius, mole, second, ampere, and candela, as well as the derived units of the newton, joule, pascal, watt, etc. Conversion from the customary inch-pound system to the SI Metric system will be emphasized.

573 Mechanics and Conditioning of Equipment 2 hrs.
A study of the principles of machining wood, metal, and synthetic materials. Practice in installation, adjustment, preventive maintenance and conditioning of power equipment will be included. Particular emphasis will be given the relationship between proper installation and condition to efficient machine operation.

575 General Industrial Arts Laboratory Organization 2 hrs.
Practical experience in drawing and planning, woodworking, metalworking, electricity, and craftwork will be required. Course will include selection, development and preparation of materials and instructional media for multiple activities instruction at the junior and senior high school levels. Prerequisite: fifteen hours in Industrial Education Technology.

578 Plastics Technology 2 hrs.
A comprehensive study of plastic materials and processes encompassing applications of thermoplastic, thermosetting, and other selected synthetic materials. Product development with emphasis on vacuum forming, compression, extrusion, injection, blow molding, lamination, casting, reinforcing, foaming, coating, and general fabrication.
582 Applied Fluid Power 2 hrs.

Deals with fluid power development transmission and control systems. Laboratory experience requires application of fluid power to a manual or electrically powered machine.

584 Automotive Technology for Teachers 3 hrs.

Deals with recent technical developments, and current practices in automotive instruction.

585 Advanced Automotive Technology for Teachers 3 hrs.

Designed for automotive teachers and advanced undergraduates. Deals with advanced technical developments, and practices and problems unique to automotive instruction.

586 Laboratory Practices in Automechanics 3 hrs.

Designed for technical school and/or community college transfer students. Emphasis on course development, teaching and evaluation methods, instructional materials and equipment selection. Includes laboratory practice applying teaching techniques. Prerequisites: I ED 584 and 585 or equivalent.

588 Power Laboratory Techniques 2 hrs.

Advanced course treating recent applications of energy and power. Emphasis on laboratory planning and equipping, and instructional material evaluation and application to instruction. Prerequisite: I ED 180, or consent.

590 Industrial Arts for the Elementary School 2 hrs.

This course is concerned with the problems of organizing, correlating and teaching constructional activities in the elementary grades. Course materials, techniques, and materials in the industrial and craft areas will be stressed through the construction of a teaching unit.

592 Aerospace for Classroom Teachers 2 hrs.

A course dealing with the educational, social, economic, and political implications of aviation in the modern world. A study will be made of basic aerospace materials and activities that are appropriate for different grade levels. Consideration will be given to aerospace literature and visual aids suitable for youngsters. Opportunities will be provided for participation in a variety of aerospace experiences. This course is open to elementary and secondary education students.

593 Arts and Crafts for Special Education Teachers 2 hrs.

This course will cover craft techniques in areas of sketching, leather, wood, and other related experiences. Emphasis will be placed on teaching procedures, methods, and materials.

594 Home Mechanics for the Blind 2 hrs.

A course to fulfill the needs for general knowledge and basic skills in home mechanics in the areas of woodworking, electricity, plumbing, and general maintenance.

598 Readings in Industrial Education 2-4 hrs.

Directed individual or small group study of topics or areas not otherwise
Industrial Education

treated in departmental courses. Graduate standing and head of department consent required.

Open to Graduate Students Only

605 Problems in Woodworking 2 hrs.
Advanced laboratory experiences in the area of woodworking. Content selection, project building and new techniques will be covered. Written reports based on current literature will be required. The areas to be covered will be dependent on individual needs.

620 Advanced Drafting Practice 2 hrs.
Advanced laboratory experiences in mechanical, architectural and machine drawing in conjunction with a study of current technical literature. Written reports are required. Advanced instruction in engineering drawing and descriptive geometry will be included.

Study and analysis of current practices in technical representation. Course content is based on current industrial practices and techniques, plus the development of skill to teach this material at the high school and junior college level.

630 Research in Machine Shop Practices 2 hrs.
For teachers who wish to study and develop advanced techniques in the area of machine technology.

640 Philosophy of Vocational Education 2 hrs.
Development of American vocational education philosophy, policy and practice. Consideration given historic, economic, and social influences on vocational and career education philosophy and practice analyzed in relation to education and labor market problems.

641 Trends in Industrial Education 2 hrs.
A study of current programs in the field, with emphasis upon program research and development. Commercial, educational, and industrial publications will be studied to determine the applicability of their contents to the school shop program.

643 Measurement in Industrial Education 2 hrs.
A study of the techniques involved in the preparation and use of teacher-constructed written and practical tests. Attention will be given to the interpretation of test results and the evaluation of student achievement.

644 Project Planning and Designing 2 hrs.
A study of the principles of design and their application to modern industrial products. Special attention will be given to advanced design problems which will enrich the school shop program.

645 Shop Planning 2 hrs.
Planning of the shop and selecting the equipment and supplies for an industrial education laboratory. A study of the basic principles of planning and equipment selection to reflect modern industrial education philosophy.
646 Teaching Problems in Industrial Education 2 hr.

Opportunity provided individual student to undertake advanced study of teaching methods, techniques, and technical problems experienced by Industrial Education teachers. Emphasis is placed on problem solving, pupil planning, and demonstration techniques. Students required to complete a teaching program unique to his particular school.

647 Modern Technological Practices – Foundry, Power Mechanics, Machine Shop, Welding, Electronics, etc. 2-4 hrs.

This in-service course for industrial teachers will provide opportunities to learn the latest in technological practices in industry. Whenever possible, cooperation of an industrial group will be utilized in planning and organizing the course. This course will be offered for two semester hours per unit and may be elected for a total of four semester hours.

648 Modern Technological Practices – Foundry, Power, Mechanics, Machine Shop, Welding, Electronics, etc. 2-4 hrs.

Continuation of Industrial Education 647.

650 Advanced Problems in Graphic Arts 2 hrs.

Opportunity is provided for the individual student to undertake advanced study of technical problems in the field of graphic arts. Advanced instruction in imposition, presswork and linotype composition will be available.

661 Electricity for Teachers 2 hrs.

For teachers planning an electrical area in their general shop or planning to teach on a unit shop basis, Special attention will be given the development of suitable instructional activities and technical information related to them. Prerequisites: I ED 160 and 560.

671 Industrial Education Materials 2 hrs.

A study of the basic structure of wood, plastic, metallic, ceramic, and allied materials. Stress is upon the properties of these materials as they relate to structure. Laboratory and testing experiences are an integral part of the course.

672 Studies in General Shop Content and Practice 2 hrs.

Study of current general shop content with emphasis on new instructional areas, science application in industry, multiple-activity instructional practices and the selection of purchasing of equipment, tools and supplies. The adaptation of experiments and exercises to general shop instruction will be included.

699 Technical Problems in Industrial Education 1-3 hrs.

Designed for qualified graduate students wishing to pursue technical problems of individual need or interest under the direction of a member of the graduate faculty. May be elected in the Industrial Education Department or in an associated department, with the approval of Head, Industrial Education Department and the faculty member under whom the student desires to work. Applicants must have permanent graduate program filed, and applications must be approved prior to registration for course. Course is repeatable to maximum of three semester hours credit. Prerequisite: I ED 598.
Open to Graduate Students Only – Please refer to The Graduate College section for course descriptions

- **700 Master’s Thesis**: 6 hrs.
- **710 Independent Research**: 2-6 hrs.
- **712 Professional Field Experience**: 2-12 hrs.

**Mechanical Engineering Technology (MET)**

Bluman, Chairman; Associate Professors Gill, Johnson; Assistant Professor Hamelink

- **521 (551) Welding Design Analysis**: 3 hrs.
  
  Production methods and design using modern techniques of electron beam welding, inertia, welding and application of lasers for welding. Use of various protective enclosures, plasma arc welding, automated electronic welding. Weld testing techniques. Prerequisite: MET 221.

- **553 (557) Advanced Product Design**: 3 hrs. Fall
  
  An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout. Prerequisite: MET 360. 453 (Offered alternate years).

- **555 Mechanism Synthesis**: 3 hrs. Fall
  
  Type, number and dimensional synthesis of planar mechanisms by graphical and analytical methods. Computer design using optimization methods. Prerequisite: MET 358 (Offered alternate years).

- **558 Mechanical Vibrations**: 3 hrs.
  
  A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems. Prerequisite: MET 355 and 360, or MATH 223.

- **559 Sound, Noise and Vibration Control**: 3 hrs.
  
  The effects of acoustical energy on the environment, methods of measurement, and governmental regulations are studied.

- **560 (556) Engineering Analysis**: 3 hrs.
  
  Application of vector analysis, differential equations and Laplace transforms to the solution of complex engineering problems. Prerequisite: MET 360 or equivalent.

Open to Graduate Students Only

- **630 (656) Advanced Fluid Dynamics**: 3 hrs.
  
  Modern developments in the field dynamics both in the areas of compressible and incompressible fluid flow. Topics include: Kinematics of fluid motion. Laminar

Numbers in ( ) refer to courses listed in the 1972-73 catalog as Engineering and Technology (ENGT) courses.
and turbulent flow in pipes, fluid machinery and supersonic flow. Prerequisites: MET 430, MATH 223.

631 (653) Advanced Heat Transfer 3 hrs.
Advanced topics in conduction, convection and radiation heat transfer with emphasis on industrial applications. Prerequisite: MET 431.

653 (651) Advanced Strength of Materials 3 hrs.
Biaxial and triaxial stresses and strain. Mathematical analysis of stress formulas. Stress concentrations. Theories of failure. Application of energy principles to deflection and indeterminant cases. Prerequisites: MET 353 and 360.

654 (652) Advanced Testing of Materials 3 hrs.
The elements of simple linear elasticity theory including the analysis of stresses and strain at a point, stress-strain relationships, equations of equilibrium and simple theories of failure. The measurement of strains and the accompanying stress analysis will be studied in the laboratory. Prerequisites: MET 353, 360, MATH 223.

660 Advanced Control Systems 3 hrs.
Analysis of nonlinear systems and systems compensation. Application to Fluid Dynamics, Pneumatics, Electrical Circuits and Inertial Guidance. Prerequisite: MET 360 or EET 470.

Occupational Therapy (OT)
Tyndall, Chairman; Professor Kiss; Associate Professor Lewis; Assistant Professor, Anderson, Lukens, Richardson

Open to Upperclassmen and Graduate Students

510 Arts and Crafts for Home Teachers of the Blind 2 hrs.
Includes methods and techniques of teaching needlework, ceramics, and leath-erwork to visually handicapped adults.

520 Kinesiology 3 hrs.
Course includes an investigation of prerequisites and characteristics of normal voluntary movement, kinesiology of normal and abnormal upper extremity function, posture and gait, range of motion and muscle strength evaluation, activity analysis and introduction to therapeutic exercise. Prerequisites: OT 221, BIOL 219.

524 Medical and Orthopedic Conditions 4 hrs.
A series of lectures providing an overview of medical and orthopedic condi-tions. Psychosocial aspects of disease and disability are discussed and an in-troduction to occupational therapy treatment goals is provided. Prerequisites: Con-sent of Department Chairman.
Paper Science and Engineering

Open to Graduate Students Only

630 Professional Literature 2 hrs.
Analysis and appraisal of current professional literature. Consideration will be given to trends, philosophy, and practice in Occupational Therapy.

632 Supervision of Occupational Therapy 2 hrs.
Place and function of supervision in Occupational Therapy. Practical problems in the supervision of staff therapists, students and volunteer groups. Techniques of effective leadership will be discussed and emphasis will be placed on the relationship of these techniques to the achievement of departmental, hospital and community goals.

633 Administration of Occupational Therapy 2 hrs.
A study of problems confronting the administrator of occupational therapy such as functional organization, personnel policy, planning of physical facilities, finance, legal aspects and hospital-community relationship.

650 Clinical Supervision 2 hrs.
Objectives and techniques of clinical teaching as applied to occupational therapy affiliating students. Course includes review of traditional clinical educational programs and the exploration of varied and unique teaching situations.

686 Seminar in Occupational Therapy 3 hrs.
This course is designed to provide examination in depth of selected occupational therapy treatment techniques as they relate to specific areas of dysfunction. May be taken more than once. Prerequisite: Consent of graduate adviser.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Paper Science and Engineering (PAPR)
Janes, Head; Professor Kukolich; Assistant Professors Fisher, Kline

Open to Upperclassmen and Graduate Students

530 Polymer Chemistry 2 hrs.
A study of the molecular structure and polymerization reactions of high molecular weight compounds in relation to mechanical and theological behavior and chemical properties. Methods for characterization of bulk and solution properties of polymers are considered in detail. Prerequisite: CHEM 361.

550 Paper Industry Processes 3 hrs.
Offered primarily for students in graphic arts and printing management programs in order to provide a basic understanding of the major aspects of the science
and technology of pulping, papermaking, coating, and evaluation of materials, especially as they relate to printing.

560 Advanced Topics in Pulp and Paper Engineering 3 hrs.
This course will stress the concepts of momentum transfer applied to fluid flow, heat transfer, and mass transfer. Mathematical consideration of filtration, extraction, mixing, and kinetics will be included.

590, 591 Instrumentation and Process Control 6 hrs.
A detailed consideration of the theory and practice of electronic and pneumatic sensing instruments and process control. Simulation of process dynamics and computer application will be emphasized.

Open to Graduate Students Only

600 Surface and Colloid Chemistry 3 hrs.
Intermolecular forces are considered in detail to build a sound background for consideration of surface and colloidal behavior of matter. The thermodynamics of interfaces and surfaces is covered in detail, considering the topics of absorption, surface films, wetting, capillary penetration, and diffusion. Colloidal topics covered include areas such as ionic boundary layers, electrokinetic potential, swelling and shrinkage of gels, ion exchange, surface active agents, detergency, and retention of particles.

620 Paper, Printing, and Ink 3 hrs.
A detailed analysis of the interrelationships of paper and the printing process. Printing problems and quality are considered as they are influenced by paper, coating, ink, and press conditions and operations.

640 Coating Rheology and Film Formation 3 hrs.
Theory and practice of pigment dispersion, coating and ink formulation, and characterization of non-Newtonian flow behavior. The relation of rheology to application, drying of films, and film properties will be discussed.

660 Mechanics and Optics of Paper and Fibers 3 hrs.
The mechanics and optics of individual fibers and fiber networks will be considered from both theoretical and measurement standpoints. Stress-strain-analysis, theory of elasticity and flow, statics, reflection, absorption, transmission, and light scattering of these systems will be covered.

680 High Polymer Topics 3 hrs.
The physical chemistry, engineering properties, and behavior of synthetic and natural polymers and their solutions is presented. Methods of characterization and significance of molecular parameters is included.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.
College of Arts and Sciences

CORNELIUS LOEW, Dean

TILMAN C. COTHAN
Associate Dean

JAMES P. ZIETLOW, Associate Dean

Graduate Offerings:
Anthropology
Biology
Black Americana Studies
Chemistry
Communication Arts and Sciences
Economics
English
Geography
Geology (Earth Science)
History
International and Area Studies
Languages, Modern and Classical
Linguistics
Mathematics
Medieval Studies
Philosophy
Physics
Political Science
Psychology
Religion
Science Division
Social Science Division
Social Work
Sociology
Speech Pathology and Audiology
The College of Arts and Sciences includes the departments of Anthropology, Biology, Chemistry, Communication Arts and Sciences, Economics, English, Geography, Geology, History, Modern and Classical Languages, Linguistics, Mathematics, Philosophy, Physics, Political Science, Psychology, Religion, Sociology, and Speech Pathology and Audiology, and the School of Social Work.

The College of Arts and Sciences offers a variety of subjects that familiarize the graduate student with the world of ideas, and deepen his understanding of man's cultural heritage. Graduate programs are offered in Anthropology, Biology, Chemistry, Communication Arts and Sciences, Earth Science, Economics, English, Geography, Geology, History, International and Area Studies, Languages, Mathematics, Medieval Studies, Physics, Political Science, Psychology, Sociology, Speech Pathology and Audiology and Social Work.

The College of Arts and Sciences cooperates with the College of Education in offering the following teacher education programs: Teaching of English, Teaching of Mathematics, Teaching of Science, Teaching of Social Sciences and Teaching of Speech Communication.

Arts and Sciences (A-S)

Open to Upperclassmen and Graduate Students

AMERICAN STUDIES

A-S 501 Studies in American Culture 3 hrs.

An interdisciplinary study of perennial issues in American life. The materials for this course are drawn from literature, the arts, the social sciences, and philosophy.

FOREIGN STUDIES SEMINARS

A-S 503 Foreign Studies Seminar 1-6 hrs.

Foreign studies seminar in the Sciences organized and conducted by the College of Arts and Sciences for exceptionally talented undergraduate or graduate student. Students completing such a seminar may receive credit in the departments of Biology, Chemistry, Geography, Geology, Physics or Psychology if approved by the Head of the Department prior to registration for the seminar.

A-S 504 Foreign Studies Seminar 1-6 hrs.

Seminar in the Social Sciences. Students who complete such a seminar may receive credit in the departments of Anthropology, Economics, Geography, History, Political Science or Sociology if the credit is approved by the Head of the Department prior to registering for the seminar.

A-S 505 Foreign Studies Seminar 1-6 hrs.

Seminar in the Humanities. Students completing such a seminar may receive credit in the departments of Art, Communication Arts and Sciences, English, Modern and Classical Languages, Linguistics, Music, Philosophy or Religion if the
credit is approved by the Head of the Department prior to registering for the seminar.

SSCI 504 Social Studies Seminar: England 6 hrs.

Foreign study seminar especially designed for teachers and advanced college students in the social studies. It consists of regularly scheduled lectures and discussions on British life, institutions, social problems, and international relations. Following twelve days of travel in the British Isles, the seminar is in formal session at Oxford University for a period of about four weeks. After this, the party spends approximately a month touring several countries on the Continent. A maximum of 3 hours credit in each of two departments in the Social Science area, under such conditions and stipulations as the individual departments may determine, may be allowed. But arrangements for this must be made in advance with the heads of the departments in which the student wishes to earn credit.

SSCI 504 Social Studies Seminar: Yugoslavia 6 hrs.

Lecture and study program in Yugoslavia, with lectures, followed by discussion forums by leading scholars in Yugoslavia and travel in the country. Designed for exceptionally talented undergraduate students and graduate students, the seminar introduces participants to the social and political system, philosophical and religious beliefs, art and literature, peoples, customs, and traditions of Yugoslavia. A maximum of three hours credit may be earned in each of two departments of the Social Science area, under such conditions and stipulations as the individual departments may make. Arrangements must be made in advance with the heads of the departments in which the student wishes to earn credit.

SSCI 504 Social Studies Seminar: East Africa 6 hrs.

Lecture and field-study program of approximately six weeks in Kenya and Uganda, especially for students and teachers in the social sciences with a special interest in Africa. A lecture series, focusing on the general theme "Education and Planning for Development" and combined with discussion forums is presented at the University College, Nairobi. University authorities and prominent leaders in African affairs deliver the lectures. Field study trips follow the lecture series. Three additional weeks are devoted to global travel. A maximum of three hours credit may be earned in each of two Social Science Departments, under such conditions and stipulations as the individual Departments may determine but arrangements for this must be made in advance with the heads of the departments in which the student wishes to earn credit.

A-S 514 Civilization Studies Seminar 1-6 hrs.

Seminar in the Social Sciences dealing with designated civilizations, cultures or areas. Students who complete such a seminar may receive credit in the departments of Anthropology, Economics, Geography, History, Political Science or Sociology if the credit is approved by the Head of the Department prior to registering for the seminar. May be repeated for credit.

A-S 515 Civilization Studies Seminar 1-6 hrs.

Seminar in the Humanities dealing with designated civilizations, cultures or areas. Students completing such a seminar may receive credit in the departments of Art, Communication Arts and Sciences, English, Modern and Classical Languages, Linguistics, Music, Philosophy, or Religion if the credit is approved by the Head of the Department prior to registering for the seminar. May be repeated for credit.
College of Arts and Sciences

Anthropology (ANTH)

Garland, Chairman; Professors Maher, R. J. Smith; Associate Professor Baldwin; Assistant Professors Green, Lex, E. Loffler, R. Loffler, Sundick, West, Willis; Instructor Moore

Open to Upperclassmen and Graduate Students

500 Topics in Archeology 3 hrs.
A consideration of the prehistory of a particular geographic area (e.g. the southwestern United States, the Circumpolar) or of selected theoretical problems (e.g. artifact typology, prehistoric ecology). The topic to be studied will be announced each semester. May be repeated for credit. Prerequisite: ANTH 210.

501 The Rise of Civilization 3 hrs.
The archeological sequence in one or more of the nuclear centers of prehistoric civilization will be considered in some detail. The course may focus intensively upon one area, or it may give equal emphasis to two or more areas in a comparative framework. The specific area or areas to be studied will be announced each semester. May be repeated. Prerequisite: ANTH 210.

510 Field Methods in Archeology I 3 hrs.
Instruction in the archeology of a particular area (e.g. Great Lakes, southwestern United States, Aleutians), with particular attention to prehistoric cultural developments and ecological relationships as these appear in the process of excavation. May be repeated for credit. Prerequisite: Consent of instructor.

511 Field Methods in Archeology II 3 hrs.
Practical application of the basic skills used in excavation of archaeological sites, including surveying techniques, methods of excavation, compilation of field data sheets, and classification of artifacts. To be taken concurrently with ANTH 510. May be repeated for credit. Prerequisite: Consent of instructor.

520 History of Ethnological Theory 3 hrs.
A systematic examination of the evolution of the significant theoretical problems and contributions in anthropology over the last two centuries. Developments are examined in relation to the prominent figures in the discipline and their times. Prerequisite: ANTH 220 or 240 or consent of the instructor.

521 Formal Approaches to Anthropology 3 hrs.
An introduction to several tools of analysis which contribute to anthropological theory. Topics chosen from anthropological research methodology, mathematical anthropology and data processing. Prerequisite: ANTH 210, 220, 240, or 250.

522 Ethnographic Field Techniques 3 hrs.
A practical examination of the means of obtaining data for ethnographic purposes. Includes readings, discussion and supervised interviewing of informants. Topics include problem formulation, investigation strategies, research proposals, field living, interviewing techniques, participant observation. Prerequisite: Consent of instructor.

523 Ethnographic Field Session 3 hrs.
Supervised field examination of human communities in respect to specific
Anthropology

ethnographic questions, analysis of field data, and report writing. May be repeated for credit. Prerequisite: ANTH 522 or equivalent, and consent of instructor.

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>531</td>
<td>Medical Anthropology</td>
<td>3 hrs.</td>
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<td></td>
<td>An examination of anthropological techniques and</td>
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<td>findings relating to medical beliefs and practices</td>
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<td>on a cross-cultural basis. Concern with the</td>
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<td>sociocultural aspects of health, illness, and</td>
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<td>folk and scientific systems of medical care.</td>
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<td>Prerequisite: ANTH 220 or 240 or consent of</td>
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<td>532</td>
<td>Culture and Personality</td>
<td>3 hrs.</td>
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<td>An investigation of the interaction of culture</td>
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<td>and personality with particular attention to the</td>
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<td>role of culture as a force in the development of</td>
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<td>the individual. Prerequisite: ANTH 220 or 240 or</td>
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<td>534</td>
<td>Peasant Societies in Cross-Cultural Perspective</td>
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<td>A cross-cultural study of the development of</td>
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<td>peasant groups as a cultural type. Theoretical</td>
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<td>and substantial emphasis is on the cultural</td>
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<td>antecedents of peasant societies, the conditions</td>
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<td>promoting change from folk to peasant status, and</td>
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<td>the relationships between peasant groups and</td>
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<td>urban, national societies. Prerequisite: ANTH</td>
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<td>535</td>
<td>The Anthropology of Religion</td>
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<td>An examination of anthropological theories and</td>
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<td>findings relating to the origin, nature, and</td>
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<td>function of religion as a universal category of</td>
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<td>culture. A scientific, cross-cultural consideration</td>
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<td>of religious beliefs and practices and their</td>
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<td>universe. The role of religion in revitalistic</td>
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<td>reactions to culture contact. Prerequisite: ANTH</td>
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<td>536</td>
<td>Cultural Evolution</td>
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<td>An inquiry into the dynamics of culture through a</td>
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<td>study of selected theories of cultural change and</td>
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<td>their application to concrete situations such as</td>
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<td>the rise of complex civilizations and the</td>
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<td>reactions of non-Western societies to contact</td>
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<td>with the West. Prerequisite: ANTH 210 or 220 or</td>
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<td>537</td>
<td>Political Anthropology</td>
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<td>Theoretical and descriptive analysis of the</td>
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<td>political aspect of social organization, ranging</td>
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<td>aspects of social organization. Prerequisite:</td>
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<td>538</td>
<td>Legal Anthropology</td>
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<td>A study of law through the theory and method of</td>
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<td>comparative legal dynamics. The relation of law</td>
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<td>to the whole of culture; the function of law as</td>
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<td>revealed in the comparative study of societies</td>
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<td>539</td>
<td>Economic Anthropology</td>
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<td>A thorough examination of the relationship</td>
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<td>between economic and anthropological theory with</td>
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<td>a strong emphasis on its applicability and</td>
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<td>usefulness for explaining the nature of specific</td>
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<td>economic relationships existing in selected</td>
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<td>primitive societies. Prerequisites: ANTH 220 or</td>
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<td>240 and ECON 200 and/or consent of the</td>
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540 Cultural Ecology

A cross-cultural comparative inquiry into the general and specific ways in which the interaction of society and environment determines the forms societies take, especially in respect to demography, territoriality, and the organization of kinship, politics, law, religion and economics. Prerequisite: ANTH 210 or 220 or 240 or consent of instructor.

542 Complex Cultures

Emphasis on anthropological approaches to cross-cultural, historical and in-depth studies of complex cultures. Selected topics: communities, including urban; the migration and adaptations of rural migrants to cities; particular sub-cultures of complex cultures; and current urban problems. Prerequisite: ANTH 220 or 240.

545 Topics in Ethnology

An intensive study of the cultures of an area of the world (e.g. Japan, Philippines, Caribbean, East Africa) or of selected problems (e.g. kinship systems, millenarian movements). Topic will be announced each semester. May be repeated for credit. Prerequisite: ANTH 220 or 240 or consent of instructor.

549 Anthropology of Education

A study of education as the process which transmits the culture of one generation of a society to the next. Particular attention is given to education in primitive and peasant societies generally lacking formal institutions of education. Prerequisite: SOC 200 or 600, or ANTH 220 or 240.

550 The Primates

A study of the Order Primates with emphasis on the similarities and differences in the physical features of man, the apes, the monkeys, and the Lower Primates. Field studies on the behavior and social organizations of monkeys and apes will be reviewed to gain insight into the early behavior and social organization of man. Prerequisite: ANTH 250 or consent of instructor.

551 Human Osteology

A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, palaeopathology, and reconstruction of the individual and the population. Prerequisite: ANTH 250 or consent of instructor.

555 Topics in Physical Anthropology

A consideration of the biological relationships of specific population groups or general problems in human biology (e.g. human genetics, human growth and constitution, paleopathology, dental anthropology). Topic will be announced each semester. May be repeated for credit with different topics. Prerequisite: ANTH 250.

575 Studies in Languages of the World

Intensive study of a group of languages (varying from semester to semester) that are either genetically related (e.g. Slavic languages), typologically similar (e.g. “tone” languages), or geographically proximate (e.g. African languages). May be repeated for credit.

580 Linguistic Field Techniques

Interview techniques for the elicitation of oral language data and methods of
analysis of the data into significant linguistic units for their eventual arrangement in the form of a grammar and dictionary. Prerequisite: Consent of instructor.

598 Readings in Anthropology 1-4 hrs.
Independent study arranged in consultation with an instructor. Intended for advanced students with good academic records. 1 to 2 hours credit per semester, cumulative to 4 hours. Prerequisite: Consent of instructor.

Open to Graduate Students Only

601 Studies in Ethnology 3-4 hrs.
Intensive study of the principal questions of sociocultural theory. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

602 Studies in Archeology 3-4 hrs.
Advanced study in the major problem areas of prehistoric research. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

603 Studies in Physical Anthropology 3-4 hrs.
Advanced instruction and research in the principal problem areas in physical anthropology. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

Biology (BIOL)

Goodnight, Head; Professors Birch, Brewer, Dulin, Haas, Holt, Robert, Stott, Vander Beek, VanDeventer; Associate Professors Buthala, Eisenberg, Engemann, Ficsor, Fowler, Friedman, Inselberg, Josten, Kirton, Lawrence, Pippen, B. Schultz, J. Schultz, Sud, Wood; Assistant Professors Beuving, Chang, DuCharme, Johnson, Olsen

Open to Upperclassmen and Graduate Students

500 Selected Experiences in Biology 3 hrs.
Problems to be studied are selected under the guidance of the instructor. Laboratory work consists of independent studies of living plants, animals and environmental problems. This is done outside of class time, utilizing procedures outlined by the instructor. Primarily for teachers. Prerequisite: Consent of instructor.

502 Human Ecology 3 hrs.
A study of the man dominated biotic community of civilization and its inter-
relationships. Lectures, assigned reading, group and individual field work. Prerequisite: At least a minor in biology.

503 Genetics of Eukaryotes 3 hrs.
A study of the structure, function, mutation and recombination of the genetic material in the nucleate organisms at the molecular, cell, tissue and organismal level. Prerequisite: BIOL 306.

505 Heredity 3 hrs.
Special problems in genetics, including a study of the structure, function, change and transmission of the genetic material. For students in in-service training. Prerequisite: BIOL 306.

506 Microbial Genetics 3 hrs.
A molecular approach to microbial genetics dealing primarily with bacterial and viral systems. Prerequisites: BIOL 412 and a knowledge of organic chemistry or biochemistry.

508 Recent Advances in Biology 3 hrs.
Recent research findings at the frontiers of biology as reported in periodicals, symposia and biological meetings. Prerequisite: At least twelve hours in biology.

509 Evolution 3 hrs.
A consideration of the evidence for and the principles involved in the evolution of plants and animals, including man. Prerequisite: BIOL 306 or consent of instructor.

510 Virology 3 hrs.
A study of the structure and physiology of viruses. Relationship to host is stressed. Prerequisites: BIOL 412 and a knowledge of organic chemistry or biochemistry.

511 Physiology of Reproduction 3 hrs.
A comparative study of the reproductive physiology of domestic animals, laboratory animals and man. Prerequisites: BIOL 317 and a working knowledge of biochemistry or consent of instructor.

512 Health Problems 2 hrs.
A course for students with special interest in the medical and public health areas. The pathology, treatment and control of the major causes of mortality and ill health are presented. A broad background in biology and chemistry is desirable.

513 Pathogenic Microbiology 3 hrs.
This course deals with pathogenic microorganisms, infectious diseases, diagnostic tests and principles of immunology. Prerequisite: BIOL 412 or equivalent.

514 Bacterial Physiology 3 hrs.
Lectures on bacterial cytology, metabolism, and physiology with emphasis on biochemical aspects. Prerequisites: BIOL 412 and biochemistry (may be taken concurrently).
516 Experimental Microbial Physiology
3 hrs.
An experimental approach to metabolism, physiology, and genetics with emphasis on biochemical techniques. Prerequisite: BIOL 514.

517 Cellular Physiology
3 hrs.
Concerned with the details of structure and functioning of cells, both animal and plant. The current status of major problems in the field is considered. Prerequisite: BIOL 517 or consent of instructor.

518 Integrative Physiology
3 hrs.
A survey of physiological events at both the cellular and organismal levels, as regulated and integrated by hormonal, neuroendocrine and other bioactive agents. Vertebulates, invertebrates, and plants will be considered as organisms whose metabolic pathways, the interrelationship of synthesis and metabolism of lipids, sugars and proteins and their various enzyme systems are regulated by hormones, neurosecretions, as well as intracellular messengers such as 3’5’ adenosine monophosphate. Some discussion of genetic, metabolic, and behavioral pathology which are related to hormones will be included. Prerequisite: Core biology program, a biochemistry or an advanced physiology course or consent of the instructor.

519 Comparative Animal Physiology
3 hrs.
A study of the basic physiological processes as they occur in various groups of animals. Prerequisite: BIOL 517 or equivalent.

520 Systematic Botany
3 hrs.
The classification and relationship to vascular plants by field and laboratory studies. Attention is given to family characteristics, evolutionary trends and geographical distribution. Prerequisite: consent of instructor.

521 Phycology
3 hrs.
Studies in the classification, structure, physiology, ecology and economic importance of the fresh-water algae. Prerequisite: BIOL 301.

522 Phytogeography
3 hrs.
A study of the geographical distribution of plants based on physical and ecological factors. Prerequisite: A course in systematic botany or equivalent.

523 Paleobotany
3 hrs.
A study of the characteristics, historical and evolutionary relationships of plants based upon the fossil record. At least two extended field trips are taken. Prerequisite: BIOL 221 or equivalent.

524 Economic Botany
3 hrs.
A study of plants useful to man for food, flavoring, drugs, clothing and building. Field trips required.

525 Biological Constituents
3 hrs.
The chemical elements in plants and animals, as well as the synthesis, characterization, and degradation products of the more important compounds. Prerequisites: twelve hours of biology; one year of chemistry.
526 Mycology 3 hrs.
Studies in the classification, structure, physiology, development and economic importance of fungi. Prerequisites: BIOL 301 and 306, or consent of instructor.

527 Plant Physiology 3 hrs.
Advanced investigations into plant functions. Basic principles are examined more intensively. Advantage is taken of the discoveries and unifying principles of modern biochemistry. Prerequisite: Consent of instructor.

528 Biology of Non-Vascular Plants 3 hrs.
The study of classification, ecology and reproductive cycles of algae, fungi and bryophytes. Culture methods of growing these plants for research occupies a part of laboratory work. Prerequisite: At least twelve hours of biology or consent of instructor.

529 Biology of Vascular Plants 3 hrs.
A detailed study of the morphology, life cycles, and evolution of vascular plants. Individual research required. Prerequisite: At least twelve hours of biology or consent of instructor.

530 Environmental Education 2 hrs.
A review of ecological principles basic to understanding environmental problems. A survey of environmental problems through readings, discussions, and field experiences. The goal of the survey is to define problems and consider paths to solutions. Students are expected to plan and, if possible, to initiate environmental education programs in their own professional areas.

531 Experimental Animal Physiology 3 hrs.
Introduction to the practice of physiological research; design, execution and analyses of experimental studies upon phenomena of contemporary interest with detailed discussion of underlying physiological principles; with emphasis on modern methodologies and instrumentation. Prerequisite: BIOL 317 and consent of the instructor.

538 Field Natural History 3 hrs.
A study of biological communities with particular emphasis on those accessible for use by public, schools, e.g., school grounds, vacant lots, roadsides, parks and undeveloped areas. Primarily for teachers. Prerequisite: At least twelve hours of biology or consent of instructor.

539 Animal Behavior 3 hrs.
Animal behavior with emphasis on evolution and ecology to include an introduction to the ethological point of view. Two student projects. Prerequisite: BIOL 301 and consent of instructor.

540 Cell and Organ Culture Techniques 3 hrs.
The various techniques of cell and organ culture will be utilized to establish in vitro cultures of animal cells and to study specific cell types, such as macrophages, lymphocytes, and liver parenchyma. Specific problems of special interest to the students will be assigned. Prerequisite: Consent of instructor.
541 Invertebrate Zoology
A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: At least twelve hours of biology or consent of instructor.

542 Entomology
A general study of insects, their structure, classification, life histories, ecological relationships and economic importance. Collection and identification of local species is required. Prerequisite: twelve hours of biology.

543 Protozoology
Field and laboratory studies of both free-living and parasitic protozoans, including taxonomy, morphology, life histories, ecology, heredity, evolutionary development. Prerequisite: BIOL 301 or consent of instructor.

544 Developmental Biology
Theories and phenomena of differentiation, cytodifferentiation and morphogenesis; concepts of inducers, organizers, etc.; experimental studies of embryos of various animals or study of some specific organs during development, including tissues culture techniques. Prerequisite: BIOL 343 or consent of instructor.

545 Histology
A study of the microscopic structure of tissues and organs. Prerequisite: BIOL 210 or equivalent.

546 General Cytology
A study of the nuclear and cytoplasmic structures of the cell involving cytochemistry and histochemistry. Principles of classical and electron microscopy will be considered. Prerequisites: An introductory course in biology. A course in physics and organic chemistry are highly recommended.

547 Ornithology
A broad course that explores both scientific and popular aspects of bird study. Life history, anatomy and physiology, behavior, ecology, and evolution are considered. Identification, bird-banding, and preparation of study skins are included. Prerequisite: Consent of instructor.

548 Animal Ecology
Characteristics of animal populations and their interactions with other populations, the role of animals in the functioning of ecosystems. Prerequisite: A course in ecology and a course in statistics, or consent of the instructor.

549 Ecology of Southwestern Michigan
Surveys and analyses of major and minor ecosystems of this region as to physical environment, composition, structure, and function. Prerequisite: A course in ecology and either systematic botany or invertebrate zoology.

551 Parasitology
A study of parasites and host-parasite relationships illustrated by typical repre-
sentatives of the principal animal groups. Special attention is given to the parasites of man. Prerequisite: At least twelve semester hours of biology.

552 **Plant Ecology** 3 hrs.
A consideration of the organization of vegetation and causal relationships between vegetation and environment. Prerequisites: BIOL 301 and a course in systematic botany or equivalents.

553 **Limnology** 3 hrs.
Biological, chemical, and physical aspects of lakes and streams. Emphasis is on the ecological relationships of invertebrate animals and lower plants. Prerequisite: At least twelve hours of biology or consent of instructor.

555 **Physiological Ecology** 3 hrs.
A study of the physiological and behavioral adaptation and responses of organisms to external environmental factors. Prerequisites: BIOL 301 and 317 and a year of chemistry or consent of instructor.

556 **Immunology** 3 hrs.
A study of the biological and biochemical mechanisms of the immune response and the chemical nature of antibodies, antigens and their interaction. Prerequisite: BIOL 412.

557 **Tropical Marine Ecology** 3 hrs.
A study of the complex interrelationships of marine life off the coast of British Honduras. Individual and group projects will be conducted on the cays and atolls of the second largest barrier reef in the world. Students must be experienced swimmers and capable of snorkel diving. Prerequisite: BIOL 301 and consent of Consortium Screening Committee. (Available only at Tropical Research Center, Belize, British Honduras)

558 **Tropical Terrestrial Ecology** 3 hrs.
A study of the terrestrial ecology in the various regions of British Honduras. Various locations will be selected to investigate the structure and dynamics of a variety of tropical ecosystems. Prerequisite: BIOL 301 and consent of Consortium Screening Committee. (Available only at Tropical Research Center, Belize, British Honduras)

559 **Radiation Biology** 3 hrs.
A study of the fundamentals of radiobiology including isotope technology, radiation measurements, radioactive decay, radiation and interaction in living matter, and health and safety regulations in the laboratory. Prerequisites: A minor in chemistry and consent of instructor.

561 **Biology of Lower Vertebrates** 3 hrs.
The biology of lower vertebrates with special reference to adaptation, evolution behavior and ecology of major groups. Classification, museum and field methods will be stressed in laboratory. Field trips required. Prerequisite: BIOL 301 or equivalent.

562 **Biology of Higher Vertebrates** 3 hrs.
Continuation of Biology 561
Black Americana Studies

598 Readings in Biology 1-3 hrs.

599 Independent Studies in Biology 1-4 hrs.
For students who wish to carry on advanced work in special fields. Pre-requisite: Consent of instructor.

Open to Graduate Students Only

601 Special Investigations (various areas) 2-6 hrs.
Critical examination of developments in the various specialties represented by members of the department. The field in which work is offered will be indicated in the student record. May be repeated for credit. Prerequisite: Consent of instructor.

602 Seminar (various areas) 2-6 hrs.
Several seminars in various areas of biology will be offered. The student's record will indicate the seminars in which he has participated. May be repeated for credit. Prerequisite: Consent of instructor.

Open to Graduate Students Only – Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

720 Specialist Project 2-6 hrs.

Black Americana Studies

Tilman C. Cothran, Acting Director

A-S 500 Black Humanism 4 hrs.
An examination of the creative dimension of the Black Experience. Isolated and set apart in an enemy environment, Americans of African descent have been very creative in a wide range of human undertakings. This fact has been acknowledged and accepted, but this creativity has not had free range. One of the outcomes of the Black Revolution has been the emergence of “soul” as a concept to label the artistry and artfulness of Black American life. The creative dimension has also included science and technology. Black humanism is a way of getting at the life-styles of Black Communities and individuals and the viability of the Black Presence and Experience. What universal elements can be identified in “soul”? What would American life and culture be like without this elusive quality?

A-S 600 Black Americana Studies—Seminar 4-6 hrs.
In-depth study of specific areas of Black American life and culture. Since Negro Americans have been involved in the total life of the nation, special study is called for. There are at least two dimensions which lend themselves to special study – the first and most obvious is that of unusual achievement by persons of known and identifiable African ancestry. A second and more elusive dimension is Black “influence” – positively and negatively – in American life and culture.
Chemistry (CHEM)

Open to Upperclassmen and Graduate Students

505 Chemical Literature 1 hr.
An introduction to the use of the various types of chemical literature such as journals, handbooks, abstracts, monographs, government and institutional publications and patents. Problems in the course require literature searches in analytical, inorganic, biological, organic and physical chemistry fields. Prerequisite: twenty-four hours of chemistry.

506 Chemical Laboratory Safety 1 hr.
A study of toxic, corrosive, flammable, explosive, electrical, mechanical, thermal, and radiant energy hazards frequently encountered in chemical laboratory work. Emphasis is placed on precautionary methods to avoid damaging accidents and on emergency procedures to apply when accidents occur. Prerequisite: twenty-four hours of chemistry.

509 Topics in Chemistry 3 hrs.
A topic is presented in greater depth or from a perspective different from that of a typical undergraduate course. Representative topics such as pesticides, etc. according to student interests and requests. Prerequisite: sixteen hours of chemistry or consent of instructor.

510 Inorganic Chemistry 4 hrs.
The course includes descriptive and theoretical inorganic chemistry as well as preparation of different types of inorganic compounds. Prerequisite or corequisite: CHEM 431.

520 Instrumental Methods in Chemistry 3 hrs.
An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy and other instrumental techniques. Four hours of laboratory per week. Prerequisite or corequisite: CHEM 431.

535 Introduction to Physical Chemistry 4 hrs.
Theory and applications of chemical structure, energetics, and rates and mechanisms of processes as a basis for understanding the principles of chemistry. Laboratory experiments are designed to emphasize quantitative measurements and the use of instrumentation in chemical systems. This course may not be applied to the requirements for a major in chemistry or for a graduate curriculum in chemistry. Prerequisites: sixteen hrs. of chemistry, MATH 123, PHYS 111 or 211.

550 General Biochemistry 3 hrs.
A thorough study of the chemistry and properties of carbohydrates, lipids, proteins and nucleic acids. Includes a discussion of enzymes, coenzymes and biochemical energetics. Prerequisites: CHEM 361 or 363, and 430.
554 General Biochemistry 3 hrs.

555 Biochemistry Laboratory 3 hrs.
A course designed to acquaint the student with current methods used in biochemical research. Experiments will include gas chromatography, thin layer chromatography, electrophoresis, enzyme purification and assay, and techniques using radioactive isotopes. Prerequisites: CHEM 550 or 450, and 222.

560 Qualitative Organic Analysis 3 hrs.
A course in the spectroscopic and chemical methods of identification of organic compounds in the pure state and in mixtures which has as a secondary goal the development of deductive reasoning in the field of organic chemistry. Prerequisites: CHEM 361 or 363, and twenty-four hours of chemistry.

562 Advanced Organic Chemistry 3 hrs.
 Covers selected topics such as organometallic compounds, heterocyclic compounds, dyes, introduction to photochemistry, organo-silicon compounds, etc. Prerequisite: CHEM 361 or 363.

580 History of Chemistry 3 hrs.
This course is taught from the point of view of the history of chemical theory in which the evidence for the theories is critically presented. Prerequisite: sixteen hours of chemistry including at least one semester organic.

590 Special Problems in Chemistry 2 hrs.
Research work on a problem in chemistry in association with a faculty member. May be repeated for credit. Prerequisites: twenty-four hours of chemistry, with approval of the Department Chairman and faculty director.

Open to Graduate Students Only

601 Graduate Seminar 1 hr.
Graduate seminar in chemistry. Required of all candidates for advanced degrees in chemistry. Graded on a credit-no credit basis. (Two semesters; 1 hr. credit)

605 Advanced Chemistry Laboratory Technique 1 hr.
Content of the course will vary depending on needs and interests of the students. Topics may include; glassblowing, laboratory electronics, vacuum line, manipulations under controlled atmosphere, separation and purification, and radiochemical techniques. May be repeated for credit. Prerequisite: Approval of instructor.

610 Advanced Inorganic Chemistry 3 hrs.
Covers the principles in inorganic chemistry and the chemical elements. Such topics as extranuclear structure of the atoms, periodic classification of the elements, valency and the chemical bond, complex ions and coordination compounds, acids and bases, and nonaqueous solvents are included in the study of chemical principles. The remainder of the course concerns the chemical elements and their compounds. Prerequisite: CHEM 510.
611 Advanced Inorganic Chemistry 3 hrs.

The chemistry of the transition elements. Consideration of the electronic and magnetic states of the transition metals and their compounds; the symmetry, stability, and reaction mechanisms of coordination compounds; application of bonding theories; systematic chemistry of the transition and inner transition elements. Prerequisite: CHEM 510.

612 Topics in Inorganic Chemistry 3 hrs.

A cooperative investigation of one or more topics of major consequence contemporary inorganic chemistry. Aspects of the topic will be developed from primary sources and presented by the students. Prerequisite: CHEM 610 or 611.

622 Theory of Analytical Chemistry 3 hrs.

A course in the fundamental principles underlying chemical methods of analysis. Special emphasis is placed on equilibria, kinetics, and mechanisms of the important types of chemical reactions (acid-base, precipitation, complex formation and redox) involved in chemical analysis; on methods of separation (precipitation, electrodeposition and distillation techniques); and on the application of statistical methods of sampling, experiment design and interpretation of results. Prerequisite: CHEM 431.

624 Analytical Spectroscopy 3 hrs.

A comprehensive treatment of those instrumental techniques which are based upon either the emission or absorption of energy by matter. Emission spectroscopy; Raman spectroscopy; mass spectrometry; ultraviolet, visible, and infrared absorption spectroscopy; fluorimetry; and other selected topics. Prerequisite: CHEM 520.

625 Electroanalytical Chemistry 3 hrs.

The theory and application of electrochemical measurements are discussed with particular emphasis on the theoretical aspects of polarography, potentiometry, amperometry, conductometric titrations, and other selected topics. Prerequisite: CHEM 520.

626 Chemical Instrumentation 3 hrs.

Principles and characteristics of construction and design of chemical and optical instruments. Prerequisite: CHEM 520.

629 Topics in Analytical Chemistry 3 hrs.

Subject for a given semester will be determined by student needs and interests. Among the subjects anticipated are: (1) Functional Group Analysis; (2) Complexation in Analytical Chemistry; (3) Analytical Separations Techniques; (4) Non-aqueous Solvents in Analytical Chemistry. Prerequisite: A 600-level analytical course.

630 Advanced Physical Chemistry 3 hrs.

Introductory quantum mechanics with particular emphasis on its use in special studies and the understanding of chemical bonding. The Boltzman distribution law and its applications to kinetic molecular theory and statistical mechanics. Prerequisite: CHEM 431.
633 Chemical Thermodynamics 3 hrs.
Includes a review of the three laws of thermodynamics, state functions, activities, partial molal qualities, thermodynamics of solutions, equilibrium and statistical thermodynamics. Prerequisite: CHEM 431.

635 Chemical Kinetics 3 hrs.
Measurement of reaction rates, reaction rate theory, mechanisms of elementary processes, reactions in solution and on surfaces, complex reactions, application of kinetics to mechanisms, and photochemistry. Prerequisite: CHEM 431.

636 Spectroscopy and Molecular Structure 3 hrs.
Concepts of atomic and molecular spectroscopy; the use of spectral data to determine the structure and physical constants of molecules; quantum mechanical interpretation of the electronic, vibration and rotational spectra of diatomic and simple polyatomic molecules; fundamentals and applications of nuclear magnetic resonance, electron spin resonance and Mossbauer effect to chemical structure problems. Prerequisite: CHEM 630.

639 Topics in Advanced Physical Chemistry 3 hrs.
This is a lecture course, the content of which may vary from year to year depending on the lecturer. Anticipated topics are: (a) high temperature chemistry, (b) electrochemistry, (c) colloids and surface chemistry. Prerequisite: CHEM 431.

650 Proteins and Nucleic Acids 3 hrs.
An advanced course in macromolecules dealing mainly with proteins and secondarily with nucleic acids. Topics covered include physical techniques for studying macromolecules such as ultracentrifugations, diffusion and viscosity; isolation and purification of protein; structure and properties of proteins and nucleic acids; protein biosynthesis; properties of enzymes and the kinetics of enzyme reactions. Prerequisite: CHEM 550.

652 Lipids 3 hrs.
The chemistry, metabolism and methods of isolation and analysis of the major classes of lipids are discussed. Specific topics include fatty acids, fats, phospholipids, glycolipids and chromatography. Prerequisite: CHEM 550.

653 Enzymes 3 hrs.
A study of enzyme catalysis, kinetics, structure and mechanism, and a survey of experimental methods for determining these aspects of enzyme function. Prerequisite: CHEM 550.

659 Topics in Biochemistry 3 hrs.
Content of the course will vary depending upon student interest and availability of staff. Contemplated topics include advanced intermediary metabolism, viruses, cancer biochemistry, physical techniques, etc. Prerequisite: CHEM 550.

661 Organic Reactions 3 hrs.
An intensive study of organic reactions with emphasis on preparative scope and utility. The following types are considered: aliphatic substitution, oxidation, reduction, condensation, etc. Prerequisite: CHEM 361 or 363.
College of Arts and Sciences

662 Stereochemistry 3 hrs.
A consideration of shapes of molecules and the isomeric consequences. Atomic and molecular orbital interpretation of molecular shape, resonance relation to stereochemistry to substitution and alkene addition reactions will be considered. Prerequisite: CHEM 361 or 363.

663 Mechanisms in Organic Chemistry 3 hrs.
Free radical, ionic, and multicenter reaction types are considered. The influence of structure and media on reactivity is included. Prerequisites: CHEM 361 or 363, and 431.

669 Topics in Organic Chemistry 3 hrs.
The course content will vary with needs of students and special competency of instructor. Prerequisite: CHEM 661 or 662 or 663 or consent of instructor.

690 Doctoral Research in Chemistry 2-10 hrs.
Research on a predoctoral problem in chemistry in association with a faculty member. Registration may be repeated as needed to complete the doctoral program. Prerequisite: Approval of the Chemistry graduate adviser and faculty director. Graded on a credit-no credit basis.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

730 Doctoral Dissertation 15 hrs.

Communication Arts and Sciences (CAS)
Brown, Chairman; Professors Buys, Helgesen, York; Associate Professors Crane, Dieker, Fleischhacker, Furbay, Grandstaff, Herman, Jaksa, Robeck, Rossman, R. F. Smith, R. L. Smith, V. Stillwell, Walton; Assistant Professors Livingston, Karsten, Pagel, Ratliffe, Sill, Stech, L. Stillwell; Instructor Cottrell

Open to Upperclassmen and Graduate Students

510 Studies in Oral Interpretation: Variable Topics 3 hrs.
Projects in reading and analysis of literature to intensify the student's application of the theory and principles of oral interpretation. Topics will vary each semester and students may repeat the course. Possible topics include the following:

a. Oral Interpretation of Shakespeare
b. Oral Interpretation of the Bible
c. Oral Interpretation of Selected Long Literary Forms

520 Studies in Theatre: Variable Topics 3 hrs.
Selective study within a broad range of aspects of theatre. Emphasis is upon concepts, theory and advanced skills. Possible topics include the following:

a. Advanced Acting
**Communication Arts and Sciences**

b. Advanced Directing  
c. Improvisational Theatre  
d. Stage Lighting  
e. Advanced Costuming  
f. Dramatic Theory and Criticism

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>526</td>
<td>History of Theatre</td>
<td>3 hrs.</td>
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<td>From the beginning to the English renaissance.</td>
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<tr>
<td>527</td>
<td>History of Theatre</td>
<td>3 hrs.</td>
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<td></td>
<td>From the English Renaissance to the present day.</td>
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<td>529</td>
<td>Stage Design</td>
<td>4 hrs.</td>
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<td>A course for students in design, including stage lighting and stage settings. Includes laboratory practice in staging University Theatre productions.</td>
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<tr>
<td>530</td>
<td>Studies in Rhetoric: Variable Topics</td>
<td>3 hrs.</td>
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<td>Selected areas of detailed study within the total range of rhetoric. Each of the courses listed below carries separate credit, and a student may take any or all of the offerings listed under CAS 530. In addition to the topics listed, additional topics are offered from time to time, and will be listed in the course schedule.</td>
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<tr>
<td></td>
<td>a. Conflict Resolution</td>
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<td>b. Ethics and Freedom of Speech</td>
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<td></td>
<td>c. Historical Bases of Rhetoric</td>
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<td></td>
<td>Analysis in depth of current and continuing issues in mass communication. Topics vary from semester to semester and students may repeat the course for credit. Possible topics include the following:</td>
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<tr>
<td></td>
<td>a. Mass Media Law and Regulation</td>
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<td></td>
<td>b. News, Politics and Mass Communication</td>
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<td>c. Mass Communication and Children</td>
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<td></td>
<td>d. Development of Mass Media in the United States</td>
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<td>545</td>
<td>Television as a Creative Medium</td>
<td>3 hrs.</td>
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<td></td>
<td>A study of the unique qualities of the television medium, through examination and analysis of television documentary, drama, visual essay and other forms from historical and contemporary periods. The observations of critics and theorists who have attempted to describe the aesthetic values of the medium will be explored.</td>
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<tr>
<td>547</td>
<td>Instructional Radio-Television</td>
<td>3 hrs.</td>
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<td>Application of radio and television for the communication specialist. Utilization of electronic resources for instruction, observation, research, and training. Lab Fee $10.</td>
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<tr>
<td>560</td>
<td>Studies in Communication Education: Variable Topics</td>
<td>3 hrs.</td>
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<td></td>
<td>Selected studies in background, methods, materials and procedures in any one of the several speech areas. Possible topics include directing speech activities, communication behaviors of change agents, as well as others. Topics will vary from semester to semester and students may repeat the course.</td>
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</tbody>
</table>
561 Teaching Communication in the Elementary School 4 hrs.

Examination of the linguistic development of pre-school and elementary school children, the functions of language, study of the nature of the emotional and physical development of children as related to symbol using behaviors, study of materials and methods for affecting desired behaviors in children's thinking, communicating and enjoyment.

562 Teaching Communication in the Secondary School 4 hrs.

This is a course in becoming a professional teacher of communication. The focus of the course is self-examination, openness, and individual initiative. Some of the major topics are an examination of self in relation to teaching, the evolving and changing philosophies of speech communication education, the world of high school teaching as it now exists, innovative procedures in teaching communication, and how to get and hold a job in speech communication. The class is, for the most part, a laboratory-workshop, using a mixture of group work, guests, visitations, and special projects. The student must have completed at least fifteen hours of work in CAS and, ideally, take the course immediately prior to student teaching.

564 Creative Dramatics for Children 4 hrs.

Study of the principles, materials and techniques of using informal drama as a classroom activity in elementary grades. Emphasizes theoretical and practical application through the planning and teaching of drama experiences.

570 Studies in Communication: Variable Topics 3 hrs.

Selected areas of study within the total range of communication. Each of the courses listed below carries separate credit, and a student may take any or all of the offerings listed under CAS 570. In addition to the topics listed, additional topics are offered from time to time, and will be listed in the course schedule.

   a. Interpersonal Theories of Communication
   b. Personality and Communication
   c. Non-Verbal Communication
   d. Attitude Change and Social Influence
   e. Theory and Research in Sensitivity Training
   f. Semantics
   g. Introduction to Communication Research

598 Independent Studies 1-4 hrs.

A program for advanced students with an interest in pursuing independently a program of readings, research or projects in areas of special interest. To be arranged in consultation with a member of the staff and the chairman of the department.

Open to Graduate Students Only

600 Listening 3 hrs.

Explores the role of listening in learning. Research in the field is examined and appraised. Listening tests are taken and discussed. Class members design listening projects or research projects. Focus increases sensitivity to the impact of speech.

610 Seminar in Oral Interpretation: Variable Topics 3 hrs.

Oral interpretation as related to techniques and materials of individual and
Communication Arts and Sciences

group readings. Provides opportunity to explore problems of various forms and practices in oral interpretation.

620 Seminar in Theatre: Variable Topics 2-6 hrs.
Provides study of broad inter-related aspects of historical and contemporary theatre. Topics include theatre and communication; theatre administration, and other topics to be offered on occasion.

625 Seminar in Summer Theatre 6 hrs.
For graduate students enrolled in the Summer Ensemble Theatre program. Theoretical considerations of all phases of theatre in conjunction with laboratory experiences in working with the production of a number of plays.

630 Seminar in Rhetoric: Variable Topics 3 hrs.
Explorations into selected topics in contemporary rhetoric. Possible topics, each of which may be taken for credit, include the following:

a. Rhetoric or Confrontation
b. Political Rhetoric
c. Philosophy of Dialogue

631 Group Problem Solving 3 hrs.
Study and practice of the dynamics of group of various kinds, as well as the methods of arriving at groups decisions. Includes the understanding of leader and participant roles.

640 Seminar in Mass Communication: Variable Topics 3 hrs.
Exploration of topics related to mass communication theory, process and application. Topics vary from semester to semester and the course is repeatable for credit. Possible topics include the following:

a. Mass Entertainment
b. Mass Communication and Social Change
c. Mass Communication and Education
d. International and Comparative Systems of Mass Communication

660 Seminar in Communication Education: Variable Topics 3 hrs.
Each student selects an area of interest which he pursues independently during the term and reports his findings periodically to his class and instructor. In addition, the history of the profession, ethics and professional practices, research in psychology and speech related to teaching speech, are studied.

664 Seminar in Creative Dramatics: Variable Topics 3 hrs.
Considers relationships of theory, materials and techniques of Creative Dramatics to child development and creative teaching in the elementary school.

670 Seminar in Communication: Variable Topics 3 hrs.
Exploration into selected topics in communication. Possible topics, each of which may be taken for credit, include:

a. Cognition and Emotion
College of Arts and Sciences

b. Current Issues in Communication
c. Small Group Communication
d. General Semantics

671 Practicum in Communication Research 3 hrs.
Selecting, formulating, designing, conducting and reporting communication research. Admission only by consent of instructor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Economics (ECON)

Bowers, Head; Professors Carlson, Copps, Ho, Junker, Ross, Sichel, Zelder; Associate Professors Bradley, Eckstein, Gardner, Kripalani, Wend; Assistant Professors Emerson, Zinn; Instructor Morreale

Open to Upperclassmen and Graduate Students

An examination of a selected area of concern not intensively covered in other courses. The focus of the course will be substantive as well as analytical. Topics may include such areas as poverty, the war industry, farm problems, misallocation of resources, welfare programs, unemployment and others. May be repeated for credit with a different topic. Prerequisite: ECON 201 and 202.

502 Studies in Quantitative Economics 4 hrs.
The course deals with statistical and mathematical techniques and concepts useful in economic analysis and their application to various areas in economics. Subject matter of the course will vary from semester to semester and may be chosen from such diverse topics as: Linear Programming, game theory, input-output analysis, statistics, welfare economics, utility theory and business cycles. Prerequisite: MATH 122 or consent of instructor.

504 Introduction to Mathematical Economics 4 hrs.
This is an introductory course to acquaint the student with the application of the basic mathematical concepts and operations to economic analysis, including such topics as revenue curves, costs curves, capital assets, and multipliers and accelerators. Prerequisites: ECON 201 and 202, MATH 122, or consent of instructor.

505 (405) History of Economic Thought 4 hrs.
A survey of the origin and development of economic thought from early times to the present. After a brief consideration of early mercantilism and the evolution of the philosophy of natural liberties specific emphasis will be placed on the contribu-
Economics

tions of significant economic thinkers and the influence of various schools of
economic thought on national policy and economic development. Prerequisites:
ECON 201 and 202.

507 Monetary Theory and Policy 3 hrs.
This course concentrates on the main elements of monetary theory and policy
having to do with such problems as promoting economic growth, maintaining full
employment and price stability, influencing the flow of capital into the various
economic sectors with different possible social goals in mind, and stabilizing inter-
national trade and financial relationships. Prerequisite: ECON 420.

508 Institutional Economics 4 hrs.
An intensive examination of heterodox economic theory, conceived in terms of
the basic social concepts of institutions and technology, and utilizing developments
in modern social science for the resolution of persistent economic problems. Pre-
requisites: ECON 201 and 202.

509 Econometrics 3 hrs.
An introductory course in analytical and quantitative methods in economics.
Applied economic problems like linear programming, input-output analysis will be
considered. Simple regression models and their uses in economics are also included.
Prerequisites: ECON 201 and 202, MATH 122, or consent of instructor.

512 Collective Bargaining 3 hrs.
An analysis of the major problems in present-day collective bargaining in-
cluding the negotiation of collective agreements, the practical aspects and the
economic implications. Prerequisite: ECON 410 or consent of instructor.

515 Economics of Human Resources 3 hrs.
The course will examine the development and utilization of manpower in the
United States, including such topics as labor force components, contributors to
productivity such as education, training, health and mobility, and issues of manpow-
er policy. Prerequisites: ECON 201 and 202.

525 State and Local Government Finance 3 hrs.
Practices, effects, and issues in state and local expenditure, taxation, and
borrowing, with particular attention to property and sales taxation, to the financing
of education and highways, and no intergovernmental fiscal relations. Prerequisites:
ECON 201 and 202.

526 The Urban Economy 3 hrs.
The course will examine the economic structure and development of the urban
complex. Among the topics to be considered are: the process of suburbanization,
urban sprawl and urban blight, the pricing and production of public utilities in the
local economy, economics of scale, the size of the urban area, the place of planning,
the impact of public services and the tax structure on the location of economic
activity, intergovernmental economic relationships. Prerequisites: ECON 201 and
202.

539 Economic Anthropology 3 hrs.
A thorough examination of the relationship between economic and anthropo-
logical theory, with a strong emphasis on its applicability and usefulness for explaining the nature of specific economic relationships existing in selected primitive societies. Prerequisites: ANTH 231, ECON 201 and 202 and/or consent of instructor.

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<tr>
<th>Course Code</th>
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<th>Credits</th>
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<tr>
<td>542</td>
<td>Business and Government</td>
<td>4 hrs.</td>
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<td>A study of the regulatory policies of government and their impact on private enterprise. The course seeks to explain the need for regulation, and to provide an analysis and evaluation of the various laws from the viewpoint of encouragement, subsidization and control. Special attention will be directed to certain aspects of concentration of economics power, public ownership and nationalization programs. Prerequisites: ECON 201 and 202. Work in political science may be substituted in special cases by permission of the instructor.</td>
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<tr>
<td>545</td>
<td>The Economics of Location</td>
<td>3 hrs.</td>
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<td>The application of economic analysis to the study of the location of economic activities as determined by transportation and the spatial distribution of resources and markets. Consideration is given to selected industry studies; problems in urban land usage, congestion, and the environmental effects of various economic activities. Prerequisites: ECON 201 and 202.</td>
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<td>The course is designed to study the pure theory of international trade and trade policy. Prerequisite: ECON 480 or consent of instructor.</td>
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<td>585</td>
<td>The Economics of Sub-Saharan Africa</td>
<td>3 hrs.</td>
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<td>A survey of the indigenous economic systems of Sub-Saharan Africa and how these systems have been modified over time by the intrusion of various foreign populations. The economic progress will be examined and a detailed investigation of economic, social, and political obstacles to further progress will be made. Not open to students who previously received credit in Economics of North Africa and the Near East 585. Prerequisites: ECON 201 and 202.</td>
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<td>587</td>
<td>Studies in Asian Economics</td>
<td>3 hrs.</td>
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<td>The course concentrates on the study of the Japanese, Chinese and Indian economic systems. These models are then applied as basis of comparison to the other Asian economics. Prerequisites: ECON 201 and 202.</td>
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<tr>
<td>588</td>
<td>Economic Development</td>
<td>4 hrs.</td>
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<td>An analysis of the economic factors such as population, resources, innovation and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural pattern and economic reasons for lack of development and the steps necessary to promote economic progress. Special attention will be paid to evaluating the effectiveness of the United States foreign-aid program and examining the issues arising as a result of the conflict with the U.S.S.R. Prerequisites: ECON 201 and 202.</td>
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<tr>
<td>589</td>
<td>The Economics of Latin America</td>
<td>3 hrs.</td>
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<td>A survey of the principal economic problems of the Latin American countries. A substantial portion of the course will be devoted to case studies of the development of particular countries. Prerequisites: ECON 201 and 202.</td>
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Economics

598 Readings in Economics 1-3 hrs.
An independent program of study for qualified advanced students to be arranged in consultation with the instructor. Prerequisite: Consent of department head.

Open to Graduate Students Only

505 Economic Theory for Business 3 hrs.
A rigorous examination of micro and macro economic theory, stressing the relationship of theory with business institutions and practice. Economic theory will also be related to operations research. Closed to students with ECON 201 and 202. Prerequisite: Consent of the instructor.

600 Applied Economics for Management 3 hrs.
The course examines the relationship between the theory of the firm and recent developments in the area of operations research. Among the concepts and tools discussed are: game theory; linear programming; capital budgeting; inventory theory; input-output analysis; price policy; cost analysis. This course may not be taken for credit if a student has received credit for ECON 400.

601 The American Economy 3 hrs.
A concentrated course in basic economic concepts with special emphasis on those areas most beneficial to teachers of social studies.

603 Advanced Price Theory 3 hrs.
An advanced study in the logic of the pure theory of production; joint production and joint costs; an introduction to the multi-periodic production theory. Advanced theory of consumer behavior; aggregation problems in product supply, factor demand and consumer demand analysis; review of selected empirical studies on consumer demand analysis; consumer surplus; problems involving optimization over time and under conditions of uncertainty including: role of savings in consumer demand theory. (utility maximization over time) Prerequisites: ECON 303 and 504.

606 Seminar in the Evolution of Economic Thought 4 hrs.
A critical study and evaluation of the various schools of economic thought with special emphasis on the ideas and theories of the leading economists in the classical, romantic, historical, socialist, neo-classical, institutional, Keynesian, and welfare economic schools. Individual research will provide the basis of class discussion. Prerequisite: A minimum of nine credit hours including ECON 201 and 202.

609 Seminar in Economics 3 hrs.
Offers the graduate an opportunity to investigate contemporary problems in economic theory and analysis. Prerequisite: 4 hours of advanced economic theory or consent of staff. Topics will vary and course may be repeated.

612 Labor Union Structure and Practice 3 hrs.
An analysis of the government and operation of American labor unions with particular reference to the problems of union leadership, disciplinary procedures, membership control and the economic and social consequences of these practices.
624 Issues in Public Finance 3 hrs.
An exploration of issues in taxation, government spending, fiscal policy, and intergovernmental relations with emphasis on recent literature in those areas. Prerequisites: ECON 201 and 202.

650 Industrial Organization and Public Policy 3 hrs.
The interest of this course centers on the areas where markets are characteristically oligopolistic. After a brief review of the different market types, the more important market structure, behavior, and performance variables and their accompanying public policy implications are dealt with.

651 Seminar in Industry Studies 2 hrs.
This course offers the graduate student who has previously studied industrial organization and public policy the opportunity to investigate the structure, behavior, and performance of a particular industry of his choice. The course will be conducted as a seminar in which the participants will discuss their findings as well as particular problems that they have incurred in the course of their research. Prerequisite: ECON 650 or the permission of the instructor.

662 National Income Analysis 3 hrs.
A basic course in economic theory with emphasis on modern theories of output of the economy as a whole and on the uses of these theories as guides to policy. Prerequisites: ECON 201 and 202.

680 Problems in International Trade and Finance 3 hrs.
An analytical understanding of contemporary issues in international trade and finance will be emphasized. Prerequisite: ECON 480 or 580 or consent.

684 Analysis of Economic Systems 3 hrs.
A comparative analysis of the role of markets and planning as means for the implementation of the goals and ideals of modern economic systems. Particular stress is placed upon modern capitalism and liberal socialism in the Western World. Prerequisite: ECON 484 or consent of the instructor.

688 Issues in Economic Development 3 hrs.
An intensive examination of a number of selected key topics in development economics, centering on issues of crucial importance to developing nations. Examples of such issues are Primary Products, Capital Formation, Technological Change, Inflation, Debt Servicing, Population, etc. Prerequisites: ECON 201 and 202.

690 Technology and Economics: The Continuing Revolution 3 hrs.
An examination of the continuing impact of technological-scientific revolution on economic theory, on socio-economic behavior and on the changing human condition. Prerequisites: ECON 201 and 202.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.
English (ENGL)

710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.

Miller, Chairman; Professors Callan, Combs, Galligan, Gianakaris, R. Goldfarb, Holaday, Macrorie, Malmstrom, Nelson, Sadler, Woods; Associate Professors N. Carlson, Davidson, Davis, Fritscher, C. Goldfarb, LaRue, Phillips, Scott, Shafer, Small, K. Smith, Stallman, Stroupe; Assistant Professors B. Carlson, Cooley, Cooney, Cutbirth, Dean, Douma, Fisher, Gingerich, Grant, Hinkel, Johnston, Seiler, Stordahl, Stott, Syndergaard, Weaver.

Except as noted below, graduate students in non-English curricula may elect 500 level English courses for graduate credit only if they have had two prior literature courses.

Open to Upperclassmen and Graduate Students

519 Studies of Non-Western Literatures in Translation 4 hrs.
Studies in Indian, and other non-western literatures. No prerequisite.

522 Topics in American Literary History 4 hrs.
Study of a movement, genre, period of theme.

529 Medieval English Literature 4 hrs.
Readings in Old and Middle English literature, excluding Chaucer.

530 Medieval Continental Literature in English Translation 4 hrs.
Readings in English translation, in medieval European literature exclusive of England.

531 Chaucer 4 hrs.
Readings in Chaucer, with emphasis on Troilus and Criseyde and The Canterbury Tales.

532 Sixteenth Century Literature 4 hrs.
Selections from major works in both prose and verse, by such writers as Wyatt, More, Sidney, and Spenser.

533 Seventeenth Century Literature 4 hrs.
Selections from the major works in both prose and verse from 1600 to the Restoration, by such writers as Bacon, Browne, the metaphysical poets, and Milton.

534 Neo-Classical Literature 4 hrs.
English literature 1660-1730 with emphasis on Dryden, Pope, and Swift.

535 Eighteenth Century Literature 4 hrs.
Readings in major English authors of the mid and late eighteenth century, with
emphasize on such writers as Johnson, Boswell, Goldsmith, Gray, Fielding, Sterne, and Smollett.

536 **Romantic Literature**  
Readings in poetry and criticism, with emphasis on Blake, Burns, Wordsworth, Coleridge, Scott, Byron, Shelley, Keats.

537 **Victorian Literature**  
Readings emphasizing Carlyle, Mill, Dickens, Thackeray, Tennyson, Browning, and Arnold.

538 **Modern Literature**  
Readings in major authors of the 20th century with some attention to precursors of the modern movement.

543 **Elizabethan and Jacobean Drama**  
Studies in the non-Shakespearean drama in England during the Elizabethan and Jacobean periods, by such dramatists as Kyd, Marlowe, Jonson, Webster, Tourneur and Ford.

554 **Milton**  
A study of Milton’s major works, with emphasis on *Paradise Lost* and the major poetry.

555 **Studies in Major Writers**  
Study of the works of classical, European, British, or American writers. Limited to one or two authors.

566 **Creative Writing Roundtable**  
An advanced course in the writing of poetry, fiction and/or drama, with class criticism of each student’s writing. The course may be taken more than once.

572 **American Dialects**  
A study of regional, social, and stylistic variation among American dialects with emphasis on the dialects of minority ethnic groups as structured systems.

574 **Linguistics for Teachers**  
An application of the concepts of linguistics to the teaching of language, literature, composition and reading in the English curriculum. Prerequisite: ENGL 270 or an Introduction to Linguistics course or permission of an English adviser.

598 **Readings in English**  
Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each student. Approval of English adviser required. May be elected more than once.

*Open Only to Graduate Students Admitted to English Curricula or by Permission of the English Graduate Adviser.*

622 **Studies in American Literature**  
The advanced study of selected aspects of American literature.
640 Poetics
An analysis of poetry, poetic theory and practice; the aesthetics of poetry.

641 Studies in Modern Poetry
An intensive study of the writings of several modern poets.

642 Studies in Drama
Selected areas of drama from classical times to the present.

644 The Novel: Form and Technique
An examination of significant forms and techniques employed in the novel from its prototypes through its more recent development.

645 Studies in the Modern Novel
An intensive study of the works of some important novelists of the twentieth century.

652 Studies in Shakespeare: Tragedy
Selected tragedies of Shakespeare. Prerequisite: An undergraduate course in Shakespeare.

653 Studies in Shakespeare: Comedy
Selected comedies of Shakespeare. Prerequisite: An undergraduate course in Shakespeare.

660 Methods of Research in English
An introduction to graduate study in English with emphasis on bibliographical work. Required of candidates for the M.A. in English.

661 Seminar in English
Study of a problem involving an author, a period, or a genre. Prerequisite: ENGL 660. Required of candidates for the M.A. in English.

668 Literary Criticism
A study of the major critical treatises. Required of candidates for the M.A. in English.

676 Early English
An examination of selected Old English (with translation), Middle English, and Early Modern English texts. Prerequisite: ENGL 270 or equivalent.

680 Advanced Methods in Teaching Literature
A study of theories and methods of teaching literature.

681 Advanced Methods in Teaching Language and Composition
A study of theories and methods of teaching language and composition.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis
6 hrs.
COURSES IN SYSTEMATIC GEOGRAPHY

Open to Upperclassmen and Graduate Students

540 (540, 541) Studies in Political Geography 3 hrs.
Philosophy and applications of the field of political geography.

A. Principles of Political Geography. Principles and concepts are treated as they apply to the evolution of the modern state. Concepts such as the “organic state,” boundaries and frontiers, the territorial sea and global relationships are treated in some detail.

B. National Power. The components of national power are analyzed according to political-geographic relationships.

543 Cultural Geography 3 hrs.

Techniques of spatial analysis applicable to the study of man and his adjustment to different environments. The place of origin, diffusion, and present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth’s surface.

544(544,545,546) Studies in Economic Geography 2-3 hrs.

Presents world patterns of agriculture, manufacture, or transportation which link global production and consumption. In any term, the course focuses upon one of these three economic sectors.

A. Agriculture. Describes and analyzes the distribution of major crops and livestock, and their combinations in common farming operations. The spatial organization of agriculture through time is analyzed for selected areas.

B. Manufacture. Evaluates the general distribution and locational factors associated with selected industries, giving particular attention both to models of industrial location and to the empirical interrelation of economic, technological, and political elements affecting the locational decision.

C. Transportation. Emphasizes the historical evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport problem, and competitive and complementary characteristics of transport modes in differing political systems.

553 Water Resources and Man 3 hrs.
Examination of water resources management with emphasis upon rational
development and utilization of available supplies. Topics include supply and demand, methods of supply augmentation (desalination, inter-basin transfers), water administration and policies, and various water problems together with their solutions.

555 Contemporary Issues in Resources Management 3 hrs.
Geographic analysis of selected contemporary natural resource and environment problems, such as questions of natural resource adequacy, environmental pollution, political and economic problems related to resource management, and individual studies of local environmental problems. Prerequisite: GEOG 350 or consent.

556 Studies in Land Use Planning 3 hrs.
Each of the courses listed below focuses on a major area of land-use planning. A student may receive credit for any or all of the offerings under GEOG 556.

- Philosophy and objectives of land-use planning; review of relevant legislation affecting utilization and conservation of land; classification of land uses; field methods and mapping techniques required for description and analysis of land use patterns.
  - A. Urban Planning. Land use planning in American cities and metropolitan areas.
  - B. Regional Planning. Organization and plans of regional development programs.
  - C. Public Lands and Parks. Specific programs and policies relating to the preservation and/or development of government-controlled lands.

570 Cities and Urban Systems 3-4 hrs.
Study of processes and forms of urban settlement highlighting problems relating to 1) political and geographical realities or urbanized regions, 2) factors in city growth (or decline), 3) the sizes, functions, and geographical distribution of cities, and 4) population patterns in contemporary cities. Activities are designed to provide the student with experience in the use of source materials and field techniques utilized in urban geography.

Open to Graduate Students Only

620 Seminar in Physical Geography 2-3 hrs.
A review of the current literature and recent developments in the disciplines which become synthesized in physical geography. Each student will explore some aspect of the field in depth. Prerequisites: GEOG 621 and 622, or consent.

621 Studies in Climatology and Meteorology 3 hrs.
Studies at an advanced level in climatology and meteorology. Examination and application of dynamic, complex, and synoptic methods of climatic description. Particular emphasis is given to regional climatic and meteorological phenomena and their relation to the general atmospheric circulation. Prerequisites: GEOG 105 and 225, or consent.

622 Studies in Soils and Vegetation Geography 3 hrs.
Soil and vegetation patterns are studied to develop the principles and explain
the factors which account for areal variation in soil-plant associations. Prerequisites: GEOG 105, AGR 320, and BIOL 100 and 101, or 107; or consent.

640 Seminar in Political and Military Geography 2-3 hrs.
A review of current literature and recent development in both political and military geography. The geopolitical and geostrategic aspects common to both will be emphasized. Prerequisites: GEOG 540, 541, and background in history, politics, and economics; or consent.

642 Seminar in Historical and Cultural Geography 2-3 hrs.
A review of current literature followed by selection and study of some aspect of the subject in depth. Prerequisite: GEOG 542 and 543, or consent.

644 Seminar in Economic Geography 2-3 hrs.
A review of the current literature with emphasis on some important development or aspect of economic geography such as location theory, marketing, or water management. Prerequisite: GEOG 244 or consent.

645 Geographical Factors in the Development of Non-Western Societies 3 hrs.
Critical examination of various types of non-Western societies particularly agrarian systems based largely on intensive subsistence or plantation agriculture; analysis of the role of irrigation and nomadism in the development of national states; study of the locational and institutional factors which inhibited the influx of Western ideas (such as the Industrial Revolution); study of transport systems and the impact of transport technology on the development of non-Western states; and consideration of origin and spread of religions and their influence on the development of non-Western cultures.

646 Analysis of Primary Resource Utilization in Developing Nations 3 hrs.
Critical examination of the resource base of developing nations in the tropical and sub-tropical realms, with particular consideration being given to political, economic, and cultural forces affecting resource development. General themes will be developed through a study of current approaches in the measurement and mapping of resources, and examination of representative plans for regional and economic development. Students will prepare case studies in their area of concentration.

647 Developing Societies in the World Geopolitical Scheme 3 hrs.
Critical examination of those aspects of emerging societies which are significant in current ideological conflicts and power struggles. Various concepts such as neutralism, nationalism, neo-colonialism, neo-mercantilism and supre-nationalism are studied in the frame of their most recent geographic connotations. The emphasis is placed upon political-geographic interactions throughout the world.

670 Seminar in Urban Geography 2-3 hrs.
A review of the current literature and recent methodological developments in the field of urban geography. Prerequisite: GEOG 570 or consent.

COURSES IN REGIONAL GEOGRAPHY

Open to Graduate Students Only

510 Anglo-America 3 hrs.
A graduate level introduction to the physical and cultural patterns of the
United States and Canada. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 380.

511 South America 3 hrs.
Regional study of the nations of South America with attention to the interrelationships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social and economic conditions is included. May not be taken for credit if student has credit for GEOG 381.

512 Middle America 3 hrs.
Systematic consideration of the physical environment of Mexico, Central America and the West Indies. A problems approach is utilized to reckon with the economic, social and political trends of the region. May not be taken for credit if student has credit for GEOG 382.

513 Western and Southern Europe 3 hrs.
Intensive regional study of these Western European nations situated west of the Iron Curtain. The physical elements (climate, landforms, resources, etc.) are examined and the associated cultural elements are identified. Emphasis is placed upon the social and economic activities of contemporary Western Europe. May not be taken for credit if student has credit for GEOG 383.

Introduction to the physical, cultural and economic geography of the U.S.S.R. and Eastern Europe. The primary focus is the Soviet Union with an emphasis on the characteristic spatial patterns and relationships found within the country. May not be taken for credit if student has credit for GEOG 384.

515 Southeast Asia 3 hrs.
A graduate level introduction to selected physical and cultural environments of Southeast Asia (Burma, Thailand, Malaysia, Indonesia, and Indo-Chinese territories, and the Philippines). Characteristics and interrelationships of population growth, the development of the agrarian base, and the utilization of industrial resources are examined in view of evolving political and cultural patterns. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 389.

516 Middle East and North Africa 3 hrs.
Study of the diversity and uniformity—both physical and cultural—of the Middle East and Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, petroleum, Arab re-unification movements, and the impact of the Muslim World on the current political scene. May not be taken for credit if student has credit for GEOG 387.

517 Middle and South Africa 3 hrs.
General survey of the broad physical realms and the background of contemporary political geography of Africa south of the Sahara; followed by interpretive studies of the major regions and states based on an examination of population distribution, the characteristics of subsistence and commercial agriculture, the availability of power and mineral resources, patterns of transportation, and current programs for regional development. May not be taken for credit if student has credit for GEOG 386.
518 The Pacific Realm 3 hrs.
A graduate level introduction to the human and physical geography of the South and Central Pacific with concentration on Australia, New Zealand, Fiji, and Polynesia. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 385.

519 East Asia 3 hrs.
A graduate level introduction to selected physical and cultural environments of the Far East (China, Korea, Mongolia, and Japan). Characteristics and interrelationships of population growth, the development of the agrarian base, and the utilization of industrial resources are examined in view of evolving political and cultural patterns. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 388.

520 South Asia 3 hrs.
A graduate level introduction to selected physical and cultural environments of South Asia (India, Pakistan, Ceylon, and the Himalayan countries). Characteristics and interrelationships of population growth, the development of the agrarian base, and the utilization of industrial resources are examined in view of evolving political and cultural patterns. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 390.

Open to Upperclassmen and Graduate Students

542 Historical Geography of North America 3 hrs.
A study of environmental, economic, and cultural factors as they combined to influence routes of exploration and trade, settlement patterns, regional economics, and sectional identities in North America.

550 Studies in Historical Geography 3 hrs.
Studies of geographic and related features which have combined to influence the course of historical development. This course will concentrate on a particular region and/or period of time during each semester in which it is offered. Each specialization will be designated in the class schedule.

Open to Graduate Students Only

609 Studies in Regional Geography 3 hrs.
An investigation of selected topics in physical and human geography of one of the major regions, i.e., Latin America, Anglo-America, Europe, Africa, Asia, Southwest Pacific, or the Northlands. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment. Prerequisite: An appropriate introductory course at either the undergraduate or graduate level.

610 Seminar in Regional Geography 2-3 hrs.
An intensive study of selected problems of various world regions such as Latin America, Anglo-America, Europe, Africa, Asia, Southwest Pacific, or the Northlands. Regional specialization will vary from semester to semester, permitting students to repeat the course for credit as long as subject matter is different. Subject for any particular semester will be indicated at time of enrollment. Prerequisite: An appropriate introductory regional course at either the undergraduate or graduate level.
Background of Contemporary Problems in Michigan

An intensive interdepartmental course designed to explore in depth the historical and geographical backgrounds of several outstanding present-day problems in Michigan in the areas of resource management, agriculture, industry, and urban-rural conflicts. Resource people from other disciplines, governmental agencies and business will provide for a well-rounded treatment of the major problems of Michigan. Prerequisite: GEOG 311 or HIST 310.

COURSES IN GEOGRAPHIC METHODOLOGY AND RESEARCH

Open to Upperclassmen and Graduate Students

Principles of Cartography

Introduction to map construction with primary emphasis on the conceptual planning and designing of maps as a medium for communication and research. Lectures are supplemented by laboratory assignments to familiarize students with drafting techniques, lettering and symbolization, the concept of scale and scale transformation, map layout and design, processes of map reproduction, the employment and construction of projections, and the compilation procedures and execution of choropleth and dot maps. Two one-hour lectures and two two-hour laboratory periods.

Field Geography

The theory and application of geographic techniques in field investigations; collection and analysis of field data; preparation and presentation of materials. The course is based primarily upon field observations. Prerequisite: GEOG 560 or consent.

Quantitative Methodology

The application of quantitative concepts and methods to the solution of geographic problems. Critical review of research in quantitative geography ranging from the use of common statistical techniques to methods of model formation in the analysis of spatial interaction. Prerequisite: A course in statistics or consent.

Advanced Cartography

Study of the more complex map projections, the compilation of data and the design of maps and graphs for research papers, and the application of statistical techniques in mapping geographic phenomena. Students are assigned special problems to develop their proficiency in the use of cartography as a tool in research. One hour lecture and 2 two-hour labs. Prerequisite: GEOG 560 or consent.

Remote Sensing of the Environment

The student will acquire proficiency in the fundamental techniques and skills of photogrammetry and photointerpretation during the first part of the course. The remainder of the semester will be spent in interpreting photos dealing with such topics as geomorphology, archaeology, vegetation and soils, water resource, rural and urban land use, as well as topics adapted to the interest and anticipated future work of the student.

Readings in Geography

Designed for highly qualified majors and graduate students who wish to study
in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental adviser and instructor.

Open to Graduate Students Only

661 Geographic Research and Source Materials 3 hrs.

Introduction to problem formulation and research design in the investigation of geographical topics, and the preparation of research studies following currently accepted practices of professional geographers. Special attention to professional literature, geographical bibliographies, map intelligence, procedures of information retrieval and documentation, and data processing. Graduate students in geography are expected to complete this course before enrolling for thesis research. Prerequisite: Written consent of departmental adviser and instructor.

664 The Development of Geographic Thought 3 hrs.

The evolution of the philosophies, concepts and methods in use by geographers today is traced and evaluated. Prerequisite: An undergraduate major or minor in geography and written consent of instructor.

665 Seminar in Geographic Education 2-3 hrs.

Designed for the advanced student interested in analyzing problems related to the teaching of geography. Prerequisite: Consent of instructor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Geology (GEOL)

Straw, Acting Chairman; Professor Schmaltz; Associate Professors Davis, Grace, Kuenzi, McGehee, Passero

Open to Upperclassmen and Graduate Students

502 Special Problems in Earth Science 2-4 hrs.

Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisite: Consent.

520 Economic Geology 3 hrs.

Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, mineral fuels, and water. Three lectures a week. Prerequisite: GEOL 335 or consent of instructor.

532 Geomorphology 3 hrs.

A systematic study of the development of land forms as created by the processes of vulcanism, gradation, and diastrophism with interpretation of topogra-
phic and geologic maps, and aerial photographs. Prerequisite: GEOL 231 or consent.

533 Invertebrate Paleontology 4 hrs.
Morphology, classification, evolution, and stratigraphic distribution of major invertebrate fossil groups. Three lectures and a three-hour laboratory. Prerequisite: GEOL 231 or consent.

534 Vertebrate Paleontology 4 hrs.
Comparative morphology, classification, stratigraphic distribution, and evolution of fossil fish, amphibians, reptiles, mammals, and birds. Three lectures and a three-hour laboratory. Prerequisite: GEOL 231 or consent.

535 Stratigraphy and Sedimentation 4 hrs.
Principles of stratigraphy and sedimentation including correlation, facies, stratigraphic nomenclature, sedimentary petrology, processes and environments. Three lectures and a three-hour laboratory. Prerequisites: GEOL 231 and consent.

536 Glacial Geology 3 hrs.
A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial geology of the Great Lakes area. Prerequisites: GEOL 231 and consent of instructor.

Open to Graduate Students Only

605 Regional Geology of the United States 3 hrs.
A systematic study of the general stratigraphy, structural geology, and geomorphology of the United States. Prerequisite: GEOL 532 or consent.

620 Marine Geology 3 hrs.
A course in oceanography with emphasis on marine geology and the relationships of physical, chemical, and biological principles to modern marine sediments and sedimentary processes. Prerequisite: GEOL 538 or the equivalent.

631 Geology for Teachers 2-4 hrs.
A study of the more common rocks, minerals and fossils and a consideration of rock structures and the development of landforms with special emphasis upon Michigan and the Great Lakes Basin. Designed for elementary teachers. Not to be used as credit for graduate programs in Earth Science and Teaching of Science.

634 Research in Geology 1-4 hrs.
Advanced readings or research in an area to be selected after consultation with a supervising staff member. May be repeated for credit (for no more than a total of six hours).

650 Topics in Earth Science 2-4 hrs.
An intensive study of specific subjects in the area of Earth Science as listed. Prerequisite: Consent of instructor. Subject offered during a semester or term will be announced in advance and selected from:
Seminar in Earth Science 1 hr.
A seminar designed to provide students with the opportunity to examine and discuss important problems in Earth Science. Oral presentations will be required. May be repeated. Prerequisite: Consent.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master's Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.

History (HIST)
Breisach, Chairman; Professors Beech, Brown, Brunhumer, Castel, Cordier, Elsasser, Hammer, Maier, Mange, Mowen, Nahm, Sommerfeldt; Associate Professors Burke, Carlson, Gregory, Hahn, Hawks, Nodel, Pattison, Schmitt; Assistant Professors Chuang, Davis, Hannah, Houdek

I. COURSES DEALING WITH A RESTRICTED CHRONOLOGICAL PERIOD OR SPECIAL PHASE OF HISTORY

Open to Upperclassmen and Graduate Students

A. UNITED STATES HISTORY

514 Black History: The Impact of Black People on American Thought and Life 3 hrs.
Intellectuals and politicians have defined the place of black people in American history in ways that affect our understanding of the present. American writers, theologians, social scientists, and politicians have also contributed to current stereotypes. In this course, students will have an opportunity to explore "popular" interpretations of slavery, abolition, race-thinking, etc., as each has been used to explain recent events. The writings of men like Martin Delany, W. E. B. DuBois, Marcus Garvey and Malcom X challenge widely-held beliefs about the past and provide fresh perspectives on contemporary America.

516 The History of the United States Constitution 3 hrs.
The Constitution is the Supreme Law of the Land. But judges apply that law. Consequently judges exercise far more power in the United States than in any other nation. How and why did this occur? And with what results, good and bad?

518 History of United States Foreign Relations 3 hrs.
While this course traces the full scope of American foreign relations, from the
American Revolution to the present, it emphasizes diplomacy of the twentieth century. The course gives attention to major diplomatic problems, but it also considers such themes as the effect of personality and politics on foreign policy, and the various "schools" of diplomatic thought.

519 America and War

The United States regards itself as a "peace-loving" nation. Yet it was born of war, has survived by war, and in modern times has been almost constantly at war. A knowledge of the military history of the United States is a key to understanding all of its history, both as it has unfolded and as it is unfolding.

520 Colonial America

The American colonies as part of the British empire; their founding, their political, social, and economic growth to the eve of the American Revolution.

521 The Era of the American Revolution 1763-1789

The causes, development, nature, and consequences of the American Revolution. Emphasis is given to the factors which induced the British to alter existing relationships with the American colonies; and the reasons for, and the variety of American responses are examined. Efforts made by both British and American leaders to preserve the imperial connection are studied along with the gradual development of the American movement to independence. Military and diplomatic aspects of the Revolution are examined; and an attempt is made to evaluate societal changes brought by American independence.

522 The Age of Democracy and Expansion, 1798-1848

The United States is a democracy. Or is it? This course attempts to answer that question by examining the origin and development of American political institutions during a time that is much like our own—that is, a time of rapid changes and intense ideological, racial, international, sectional and personal conflict.

523 The American West

A study of the exploration, conquest, and occupation of the North American continent. Among the topics included are Indian relations, the fur trade, land disposition, the cattle frontier, the mining frontier, and problems of law and order.

524 The Civil War and Reconstruction

Between 1861 and 1865 over 60,000 Americans died fighting each other. Why? And with what results? The answers to these questions do not simply illuminate the past; They also tell us much about the present—a present in which many of the basic factors which produced the Civil War are still operating.

525 The Emergence of Modern America, 1877-1914

This course will focus on the causes and consequences of industrialization, urbanization, progressivism, and the concurrent revolutions in agriculture, transportation, and communications. Attention will also be given to changing attitudes and values, the problem of generalization, and to the anonymous American.

526 The U.S. between World Wars, 1914-1940

For most Americans the twentieth century began with World War I; an examination of our response to the historical realities of the ensuing era can serve to
clarify the dimensions and complexities of contemporary America. This course will emphasize the anonymous American through his political leaders, social and economic aspirations, religious devotions, international hopes and fears, and popular entertainments.

527 Contemporary America: 1940 to the Present 3 hrs.
Beginning with the background to the Second World War, this course brings American history as close to the present as possible. It follows the nation's change from detachment before the war to entanglement in the 1960's in problems all over the world. It deals with the efforts of the nation and groups within the nation—to cope with the enormous political, economic, and social problems of the decades after the war. The course considers conflicting opinion of various issues, seeks to view events from both the perspective of the present and the time of their occurrence.

B. HISTORY OF EUROPEAN NATIONS

534 Medieval France 3 hrs.
A study of the formation of the French people and nation during the thousand years which followed the fall of the Roman Empire in the 5th century. A.D. Threatening this process were the disruptive forces of provincialism and invasion by foreigners. Contributing to its success were the growth of a unified church, a national monarchy, the expansion of a vigorous rural and urban economy, and the development of a national language and literature.

535 Medieval England 3 hrs.
The story of the growth of the English people from scattered tribes of Anglo-Saxon invaders in the 5th century into one of the most highly organized European nations by the 15th century. Basic to this growth were the creation of a powerful kingship based on a common law and Parliament, the establishment of a vigorous national church, the prosperity of countryside and town, and the development of a national language and literature.

536 Tudor-Stuart England: The Era of the Monarchy 3 hrs.
A study of the period when Great Britain breaks with her medieval past and becomes one of the most modern states in Western Europe after having progressed under the strong Tudor rulers, suffered under the obstinate early Stuarts, begun an empire, survived civil war and the Cromwellian republic, restored the monarchy under the later Stuarts, and plunged into the revolution which produced the Bill of Rights and representative government under a constitutional monarchy.

537 Hanoverian England: The Era of the Aristocracy 3 hrs.
The study of Great Britain during the years when, guided by the aristocratic classes in cooperation with a limited monarchy, internal stability was established; the economic revolution and the unforeseen problems which it created were begun; her place as a major European power was guaranteed; her North American empire was lost; and the threat to her position by the French Revolution and Napoleon was met successfully.

538 Victorian England: The Era of the Middle Class 3 hrs.
A look at the years of Victoria's long reign as Great Britain attempted to solve the problems caused by the French and Economic Revolutions through parlia-
mentary reform and additional democracy, resulting in the transition from a rural to an urban society; the rise of the middle class to a position of dominance; and the emergence of Britain as the greatest industrial nation and the most powerful empire in the world.

539 Contemporary Britain: The Era of the Common Man 3 hrs.
An exploration of the history of Great Britain during the crucial years of challenge to her position as a world power, to her position as mother country, to her democratic monarchy; and consideration of the ways in which these challenges were met, two world wars successfully fought, a Commonwealth organized with all members equal among equals, and a state responsible for the welfare of all subjects of the Crown from the cradle to the grave established in the socialist revolution after World War II.

540 Life in Tsarist Russia 3 hrs.
Westernization, emancipation of the peasants, revolutionary movements, and the spiritual evolution of the Russian people during the eighteenth and nineteenth centuries.

541 The Soviet Union in World Affairs 3 hrs.
Consideration is given to the various factors constituting the background necessary for the appreciation of the role of the Union of Soviet Socialist Republics in world affairs from 1917 to the present time. This includes a study of the geographical, ideological, political, economic, military, social, and human aspects of Soviet foreign policy. The nature of Soviet foreign policy as affected by the national and international events during the leadership of Lenin, Stalin, Khrushchev, and Brezhnev-Kosygin is studied.

542 Nationalities in the Soviet Union 3 hrs.
This course constitutes a study of the historical background and contemporary status of the principal groups in the Union of Soviet Socialist Republics. It deals with the implementation of the Communist Party credo of “national in form, socialist in content.” Emphasis is placed on group social and cultural identity. Consideration is given to the implementation of the official amalgamated nationality concept.

544 Modern France 3 hrs.
An examination of factors in French life in the 19th and 20th centuries fostering stability and instability, growth and stagnation, harmony and conflict, triumph and tragedy.

C. EUROPEAN HISTORY

551 Imperial Rome (The First Century) 3 hrs.
A study in depth of Roman politics and culture from the close of the Republic through the reigns of the emperors Augustus, Tiberius, Caligula, Claudius, and Nero. Emphasis will be placed on use of original sources in shaping the history of the century 300 B.C. to 70 A.D.

552 The Medieval Church 3 hrs.
Christianity is the most obvious and perhaps, the most important element in early Western culture. In this course we are not so much interested in the Church as
an institution as in the growth of Western culture in the age—from the time of Jesus to that of Luther—in which Christian values were so important in everyday life. Among the topics we will consider are the impact of the classical and Germanic cultures on the church, the church and feudalism, church-state relations, the rise and fall of papal theocracy, scholasticism, and mysticism. The emphasis throughout will be on topics most important for the understanding of our own values and society.

553 Life in the Middle Ages 3 hrs.

This course seeks to capture the reality of everyday life for the three main groups of lay people in medieval society, peasants, nobles, and townspeople, by studying members of each of those groups from the following viewpoints: (1) the ways in which they made a living, i.e., their work, the way it was organized, as for instance in the manor or the guild, and the methods, techniques, and equipment available to them; (2) the ways in which they spent their leisure time; (3) their standard of living as measured by their food, clothing, and other material possessions; (4) the social groups of which they were members and which gave meaning to their lives such as the family, the local community, and their social class; (5) their beliefs, values, and general outlook with special emphasis on the consequences of widespread illiteracy—the course will not discuss the culture of the educated elite such as in medieval philosophy and theology; and finally (6) their normal life cycle from childhood to old age looking at decisive events such as marriage, the birth of children, and death, and giving special attention to the high birth and death rates and low life expectancy, and their causes and consequence.

554 The Renaissance 3 hrs.

Between 1300 and 1517 great changes in European life were brought about by the catastrophic Black Death, the activities of merchant venturers, the coming of gunpowder and diplomacy, the state as a new form of life as well as by new ideas about man, God, and the universe and by the geniuses of the brilliant Italian Renaissance (Petrarch, Giotto, Michelangelo, Leonardo da Vinci, and others).

555 The Reformation 3 hrs.

After 1517 the Western church broke apart and with it vanished the last remainder of European unity. Luther, Calvin, and Zwingli reshaped religious thought. Regional churches appeared. The Roman Catholic Church underwent a renewal. All of that was accompanied by bitter religious wars but also by early traces of the sciences, visionary social schemes, and a feverish artistic activity.

557 Seventeenth Century: Age of Grandeur and Violence 3 hrs.

An investigation into the tensions, conflicts, and paradoxes of an age in which the shock of new forces is undermining a traditional order.

558 Eighteenth-Century Europe 3 hrs.

A wide-ranging study of a creative period during which many modern institutions and values took form: social structure and economic development in the century; domestic politics and international relations; currents in religion and the arts; the Enlightenment.

559 The French Revolution and Napoleon 3 hrs.

Theories respecting the French and related revolutions, and the nature of revolution and of the revolutionary psychology; the 18th-century background; the
History

moderate and radical phases of the Revolution proper; the rise and fall of the Napoleonic Empire.

560 Nineteenth Century Europe 4 hrs.
A study of the revolutionary currents pulsating through Europe in the 19th century, of the conflicts they engendered and the profound changes they wrought.

562 Hitler’s Europe: 1914-1945 3 hrs.
The first modern generation of Europe is associated with an era of unprecedented violence. The course is concerned with the experiences of people and the events of states that raise questions as to the dynamics of revolution, hate, idealism, propaganda, optimism, wars, economic ambitions, progress, and murder.

563 Europe Since 1945 3 hrs.
The recovery of Europe from World War II; the movement toward European unity; the defense of Europe; and the role of Europe in the international community.

D. LATIN AMERICA

571 Mexico: The Building of a Nation 3 hrs.
A review of the 19th century gropings toward national unity and identity, and of the 20th century eras of violent revolutionary paroxysm and post-revolutionary ordered development in the Latin American nation which has impinged most immediately and continuously on the conscious awareness of the United States.

572 The Plata Region: Argentina, Paraguay, Uruguay 3 hrs.
The three nations herein explored offer an intriguing spectrum of the varieties of national experience to be found in the Latin American area. The range is from relatively static life and institutions throughout the period of nationhood to dynamic modernism in the same contexts. An effort is made to comprehend those factors which have contributed to and resulted in these differences.

E. THE FAR EAST

580 Traditional China 3 hrs.
A study of the highlights of the history and culture of pre-modern China with particular attention to her international relations, reform and rebellions as well as to social, intellectual, and institutional change.

581 Modern China 3 hrs.
A study of the rise of Chinese nationalism; the revolutionary movement of the Nationalists; the Kuomintang rule; the Japanese aggression in China; the rise of communism and Mao Tse-tung; the Great Leap Forward and Cultural Revolution in Communist China.

582 Japan’s Transition from a Feudal State to a Modern Nation 3 hrs.
A study of political, economic, social, and cultural patterns and institutions of feudal Japan; the opening of Japan to the West; and the reformistic and revolutionary changes which transformed her into a modern nation.
583 Modern Japan (Japan: The Rise and Fall of a Militaristic Empire) 3 hrs.
A study of the growth of nationalism, colonialism, militarism, and imperialism in Japan; international relations of Japan; the fall and the Allied Occupation and reconstruction; Japan’s new role in the world.

584 Modern Korea 3 hrs.
A study of the decline of the Yi dynasty; Korea’s struggle against foreign encroachment; the era of Japanese colonial rule; the liberation of Korea; and the establishment of two Koreas.

585 Southeast Asia in the Twentieth Century 3 hrs.
Nationalism in southeast Asia and the struggle against Western colonialism; the rise of social and economic revolutions; problems of independence and modernization in the newly emerging nations of the region.

F. AFRICA

587 Ancient and Medieval Africa 3 hrs.
History of Africa from earliest times until the emergence of the slave trade as the dominant factor in African relations with the rest of the world. Examination of the question of the origin of man in Africa, the role of ancient Egypt in African civilization, the Bantu expansion, Punic and Roman Africa, the rise of Islam, the Golden Age of the Sudanic empires, and the states of the West African forest, Congo Basin, and East Africa.

588 Modern Africa 3 hrs.
Historical background of the major issues of contemporary Africa, including colonialism and neo-colonialism, Pan-Africanism, and nationalism. Examination of major problems including the Congo, Nigerian civil war, Algerian revolution, minority rule in southern Africa, etc.

II. GENERAL COURSES

592 Historical Literature 3 hrs.
Historical writings arise from a curiosity about the human condition. Can man do good? What is the source of evil in his life? What happens to man in social situations? Does man make his own fate and does he deserve it? Historical writings suggest the problems in any search for truth, its description, and its evaluation. The course includes a survey of historical writings and an opportunity to read from within their wide variety.

593 Philosophy of History 2 hrs.
What do all the rulers, battles, catastrophes, cultures, glories, and defeats add up to? Is there a goal toward which all of history marches or is there no rhyme and reason to the collective human experience? Thinkers such as Thucydides, St. Augustine, Vico, Hegel, Marx, Spengler, Toynbee, and the existentialists gave different answers to these questions.

594 War in the Modern World 3 hrs.
Select topics in modern war and current military developments. Topics for
each semester will appear in the Schedule of Classes. The course may be repeated for separate credit as long as the topic varies.

595 History of War 3 hrs.

The history of war from the age of Louis XIV to the era of the World Wars. An examination of the evolution of war and the role of conflict in international relations.

III. SPECIAL COURSES

500 Problems in History 2-3 hrs.

The course is designed to show the usefulness of the historical approach for the understanding of the great and relevant issues confronting modern man. Multiple sections will be offered, each of which may deal with a different topic as listed in the Schedule of Classes.

510 Field Study in Michigan History 3 hrs.

511 Historical Museums Workshop 3 hrs.

Lectures, demonstrations, field trips, readings, discussion, and work experiences in museum theory and technique introduce the student to the types of work curators of historical museums do. Not offered on a regular basis.

598 Independent Reading in History 2-3 hrs.

For the gifted student with special interests. The usual requirements are: a 2.7 minimum overall grade point average and a 3.0 minimum grade point average in all History courses. Reading on some selected period or topic under the supervision of a member of the History Department faculty, with the approval of the supervising instructor and the chairman of the Department's individualized courses prior to registration.

IV. COURSES OPEN ONLY TO GRADUATE STUDENTS

A. STUDIES IN HISTORY

(Courses in which, through lectures, reading, reports, and discussion topics in an historical field are explored in depth. Where only general field is indicated, the specific field will be specified in the schedule of classes when the course is offered).

610 Studies in Michigan History 3 hrs.

628 The History and Culture of the Old Northwest 3 hrs.

637 Studies in United States History 3 hrs.

652 Medieval Studies 3 hrs.

654 Studies in the Renaissance and Reformation 3 hrs.

658 The Enlightenment 3 hrs.

662 Studies in Russo-Soviet History 3 hrs.
College of Arts and Sciences

667 Studies in Recent European History 3 hrs.
685 Studies in Far East History 3 hrs.
688 African History Studies 3 hrs.

B. SEMINARS

(Courses which focus on research and the preparation of papers. The specific field of each seminar, when offered, will be indicated in the schedule of classes.)

626 Seminar in Early American History 3 hrs.
636 Seminar in Recent American History 3 hrs.
646 Seminar in Ancient and Medieval History 3 hrs.
656 Seminar in Early Modern European History 3 hrs.
666 Seminar in Recent European History 3 hrs.
676 Seminar in Russo-Soviet History 3 hrs.
686 Seminar in Far East History 3 hrs.
696 Seminar in African History 3 hrs.

C. PROFESSIONAL COURSES

690 Historical Method 3 hrs.
Designed to introduce students to and familiarize them with the tools, techniques, and principles of historical research and writing. The principal reliance is upon exercises in the application of historical method to specific problems.

692 Studies in Historical Literature 3 hrs.
Designed to acquaint the student with the major historical works in his designated field of special interest. Required of all candidates for the Master’s or Specialist degree in History. Students enrolling should consult the Graduate Adviser.

699 Historical Essay 4 hrs.
An analytical and interpretive study to be written under the supervision of a member of the History faculty and selected in consultation with the graduate adviser.

D. Please Refer to The Graduate College section for course descriptions for the following

700 Master’s Thesis 6 hrs.
710 Independent Research 2-6 hrs.
720 Specialist Project 2-6 hrs.
International and Area Studies

Fredric J. Mortimore, Director

The Institute of International and Area Studies (IIAS) was established by the Trustees and Administration of Western Michigan University to design, coordinate and administer interdisciplinary programs devoted to the study of cultures located geographically outside the continental United States. Pursuant to this mandate, the Institute, in subsequent years, has (1) facilitated the formation of African, Asian, Comparative/Cross-Cultural, Latin American and Slavic Studies programs at the University, (2) encouraged by various means curricular and staff development in the fields, of both comparative/cross-cultural and area studies, (3) coordinated, with the active support of participating departments, undergraduate and graduate-level programs in area and comparative/cross-cultural studies, (4) cooperated with governmental agencies in student exchange and visiting leader programs, and (5) conducted conferences, seminars, symposia and lecture series which had as their focus comparative and area concerns.

The Institute offers two graduate-level programs, the Master of Arts in International and Area Studies and the Specialist in Arts in International and Area Studies. Master's degrees may be taken with major emphasis upon either (1) African Studies, (2) Asian Studies, or (3) Comparative/Cross-Cultural Studies, while Specialist programs are offered with special emphasis upon either (1) African Studies, (2) Asian Studies, or (3) Comparative/Cross-Cultural studies.

The faculty members involved in International and Area Studies are listed below with their disciplines:

African Studies Program
Edward T. Callan (English); Gurdino Dadlani (Social Work); Ronald W. Davis (History); Thomas Dube (General Studies); David Ede (Religion); William Garland (Anthropology); Bruce Haight (General Studies); Robert Hannah (History); Jeanette Irvin (Black Americana Studies); Dorotha Kercher (Waldo Library); Leonard Kercher (Sociology); Eugene C. Kirchherr (Geography); Reinhold Loffler (Anthropology); Peter Malanchuk (Waldo Library); Edwin Meader (Geography); Fredric J. Mortimore (IIAS); Joseph Muthiani (Linguistics); Robert A. Palmatier (Linguistics); Claude S. Phillips, Jr. (Political Science); Evan L. Richards (General Studies); Visho B. L. Sharma (General Studies); John P. Willis (Anthropology); and Wilford Young (Black Americana Studies).

African Studies Core Courses

Anthropology
545 Topics in Ethnology: Africa 3 hrs.
598 Readings in Anthropology: Africa 1-4 hrs.

Arts and Sciences
500 Black Humanism 4 hrs.
504 Foreign Studies Seminar: Africa 1-6 hrs.

Economics
585 Economics of Sub-Saharan Africa 3 hrs.
598 Readings in Economics: Africa 1-3 hrs.
College of Arts and Sciences

Geography

516 Middle East and North Africa 3 hrs.
517 Middle and South Africa 3 hrs.
598 Readings in Geography: Africa 1-3 hrs.
609 Studies in Regional Geography: Africa 3 hrs.
610 Seminar in Regional Geography: Africa 3 hrs.

History

587 Ancient and Medieval Africa 3 hrs.
588 Modern Africa 3 hrs.
598 Reading in History: Africa 2-3 hrs.
688 Studies in African History 3 hrs.
696 Seminar in African History 3 hrs.

Linguistics

505 Basic Critical Languages 4 hrs.
Swahili 4 hrs.
Arabic 4 hrs.
506 Intermediate Critical Languages 4 hrs.
507 Advanced Critical Languages 4 hrs.
508 Reading Critical Languages 4 hrs.
509 Writing Critical Languages 4 hrs.

Political Science

549 Problems of Foreign Political Systems: Africa 3-4 hrs.
598 Readings in Political Science: Africa 1-4 hrs.
640 Seminar: Foreign Political Systems: Africa 3 hrs.
644 Seminar: Political Modernization: Africa 3 hrs.

Religion

500 Historical Studies: Islam in the Modern World 2-4 hrs.
500 Historical Studies: Islamic Mysticism 2-4 hrs.
598 Readings in Religion: Africa 1-4 hrs.

Social Science

605 Seminar in Area Studies: Africa 3 hrs.

Sociology

533 Comparative Institutional Studies: Africa 3 hrs.
535 Changing Social Systems: Sub-Saharan Africa 3 hrs.

Asian Studies Program

Robert L. Shafer (English), Head; Lilia Chen (Linguistics); Chen-kuan Chuang (History); David G. Dickason (Geography); D. P. S. Dwarikesh (Linguistics); Byron H. Earhart (Religion); David Ede (Religion); Nancy E. Falk (Religion); Alfred K. Ho (Economics); Charles O. Houston (Social Science); Chester L. Hunt (Sociology); C. I. Eugene Kim

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## International and Area Studies

(Political Science); David Lewis (Sociology); Reinhold Loffler (Anthropology); Robert F. Maher (Anthropology); Fredric J. Mortimore (IIAS); Andrew C. Nahm (History); William R. Rosegrant (English); Martin H. Ross (Sociology); Visha B. L. Sharma (General Studies); Bonnie Sigren (General Studies); Subhash Sonnad (Sociology); Yasuko Whitmore (Linguistics); and Lawrence Ziring (Political Science)

### Asian Studies Core Courses

#### Anthropology
- **545** Topics in Ethnology: Asia (3 hrs.)
- **598** Readings in Anthropology: Asia (1-4 hrs.)
- **603** Studies in Physical Anthropology: Asia (3-4 hrs.)

#### Economics
- **587** Studies in Asian Economics (3 hrs.)
- **588** Economic Development: Asia (4 hrs.)
- **598** Readings in Economics: Asia (1-3 hrs.)

#### Teacher Education
- **552** Comparative Education: Asian Education (3 hrs.)

#### English
- **519** Studies of Non-Western Literature in Translation: Asian Literature (4 hrs.)
- **555** Studies in Major Writers (Asian) (4 hrs.)

#### Geography
- **515** Southeast Asia (3 hrs.)
- **519** East Asia (3 hrs.)
- **520** South Asia (3 hrs.)
- **550** Studies in Historical Geography: Asia (3 hrs.)
- **598** Readings in Geography: Asia (1-3 hrs.)
- **609** Studies in Regional Geography: Asia (3 hrs.)
- **610** Seminar in Regional Geography: Asia (2-3 hrs.)

#### History
- **580** Traditional China (3 hrs.)
- **581** Modern China (3 hrs.)
- **582** Japan's Transition from a Feudal State to Modern Nation (3 hrs.)
- **583** Modern Japan (3 hrs.)
- **584** Modern Korea (3 hrs.)
- **585** Southeast Asia in the Twentieth Century (3 hrs.)
- **598** Reading in History: Asia (2-3 hrs.)
- **685** Studies in Far East History (3 hrs.)
- **686** Seminar in Far East History (3 hrs.)

#### Linguistics
- **506** Intermediate Critical Languages
  - Chinese (4 hrs.)
  - Hindi-Urdu (4 hrs.)
  - Japanese (4 hrs.)
College of Arts and Sciences

507 Advanced Critical Languages 4 hrs.
508 Reading Critical Languages 4 hrs.
509 Writing Critical Languages 4 hrs.
575 Studies in Languages of the World: Asian Languages 3 hrs.

Political Science

543 Politics and Institutions of South Asia 3 hrs.
544 The Military and Political Systems 3 hrs.
545 Theories of Political Development 3 hrs.
547 Political Modernization of Japan and Korea 3 hrs.
548 Asian Communism 3 hrs.
549 Problems of Foreign Political Systems: Asia 3-4 hrs.
598 Readings in Political Science: Asia 1-4 hrs.
640 Seminar: Foreign Political Systems (Asia) 3 hrs.
644 Seminar: Political Modernization (Asia) 3 hrs.

Religion

500 Historical Studies in Religion: Designated Topics 2-4 hrs.
598 Readings in Religion: Asia 1-4 hrs.

Social Science

605 Seminar in Area Studies: Asia 3 hrs.

Sociology

533 Comparative Institutional Studies: Asia 3 hrs.
534 Studies in Ethnic Relations: Asia 3 hrs.
598 Directed Individual Study 2-6 hrs.

Comparative/Cross-Cultural Studies Program

Fredric J. Mortimore (IIAS), Adviser: Kenneth A. Dahlberg (Political Science); D. P. S. Dwarikesh (Linguistics); H. Byron Earhart (Geography); William Garland (Anthropology); Charles F. Heller (Geography); Charles O. Houston (Social Science); Chester L. Hunt (Sociology), Alan Isaak (Political Science); Louis J. Junker (Economics); Eugene C. Kirchherr (Geography); Robert F. Maher (Anthropology); Jerome G. Manis (Sociology); Cora B. Marrett (Sociology), Claude S. Phillips, Jr. (Political Science); Eldor C. Quandt (Geography); Henry A. Raup (Geography); William A. Ritchie (Political Science); Robert Jack Smith (Anthropology); and Lawrence Ziring (Political Science)

Comparative/Cross-Cultural Studies Core Courses

Anthropology

534 Peasant Societies in Cross-Cultural Perspective 3 hrs.
536 Cultural Evolution 3 hrs.
537 Political Anthropology 3 hrs.
538 Legal Anthropology 3 hrs.

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### International and Area Studies

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>540</td>
<td>Cultural Ecology</td>
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<td>575</td>
<td>Studies in Languages of the World</td>
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</tr>
<tr>
<td>598</td>
<td>Readings in Anthropology: Comparative Studies</td>
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**Economics**

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<td>508</td>
<td>Institutional Economics</td>
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<td>539</td>
<td>Economic Anthropology</td>
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<tr>
<td>588</td>
<td>Economic Development</td>
<td>4 hrs.</td>
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<td>598</td>
<td>Readings in Economics: Comparative Studies</td>
<td>1-3 hrs.</td>
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<td>688</td>
<td>Issues in Economic Development</td>
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**Geography**

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<tr>
<td>540</td>
<td>Studies in Political Geography</td>
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<tr>
<td>543</td>
<td>Cultural Ecology</td>
<td>3 hrs.</td>
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<td>544</td>
<td>Studies in Economic Geography</td>
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<tr>
<td>570</td>
<td>Cities and Urban Systems</td>
<td>3-4 hrs.</td>
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<tr>
<td>598</td>
<td>Readings in Geography: Comparative Studies</td>
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<td>640</td>
<td>Seminar in Political and Military Geography</td>
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<tr>
<td>642</td>
<td>Seminar in Historical and Cultural Geography</td>
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<td>644</td>
<td>Seminar in Economic Geography</td>
<td>2-3 hrs.</td>
</tr>
<tr>
<td>645</td>
<td>Geographical Factors in the Development of Non-Western Societies</td>
<td>3 hrs.</td>
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<tr>
<td>646</td>
<td>Analysis of Primary Resource Utilization in Developing Nations</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>647</td>
<td>Developing Societies in the World Geopolitical Scheme</td>
<td>3 hrs.</td>
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<tr>
<td>670</td>
<td>Seminar in Urban Geography</td>
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**Linguistics**

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<tr>
<td>575</td>
<td>Studies in Languages of the World</td>
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**Political Science**

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<tr>
<td>542</td>
<td>Administration in Developing Countries</td>
<td>3 hrs.</td>
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<tr>
<td>545</td>
<td>Theories of Political Development</td>
<td>3 hrs.</td>
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<td>549</td>
<td>Problems of Foreign Political Systems</td>
<td>3-4 hrs.</td>
</tr>
<tr>
<td>556</td>
<td>Comparative Foreign Policy</td>
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<td>560</td>
<td>Comparative Political Ideology</td>
<td>3-4 hrs.</td>
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<td>598</td>
<td>Readings in Political Science: Comparative Studies</td>
<td>1-4 hrs.</td>
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<tr>
<td>642</td>
<td>Seminar: Cross-National Political Analysis</td>
<td>3 hrs.</td>
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<td>644</td>
<td>Seminar: Political Modernization</td>
<td>3 hrs.</td>
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<tr>
<td>650</td>
<td>Seminar: International Relations</td>
<td>3 hrs.</td>
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<td>660</td>
<td>Seminar: Political Thought</td>
<td>4 hrs.</td>
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**Social Science**

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>506</td>
<td>Studies in the Non-Western World</td>
<td>2-3 hrs.</td>
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<tr>
<td>605</td>
<td>Seminar in Area Studies</td>
<td>3 hrs.</td>
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<tr>
<td>606</td>
<td>Colloquium in International and Area Studies</td>
<td>3 hrs.</td>
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**Sociology**

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>532</td>
<td>Introduction to Comparative Sociology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>598</td>
<td>Directed Individual Study</td>
<td>2-6 hrs.</td>
</tr>
<tr>
<td>615</td>
<td>Patterns of Intercultural Adjustment</td>
<td>3 hrs.</td>
</tr>
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</table>
## Latin American Studies Program

Leila Bradfield (Sociology), Head; Elsa Alvarez (Languages); David Chaplin (Sociology); Peter Eckstein (Economics); Edward Elsasser (History); Ramesh Garg (Finance); Ernestene Green (Anthropology); David Hanson (Political Science); Oscar Horst (Geography); Arturo Jasso (Languages); Herb Jones (Languages); Manuel Mantero (Languages); Fredric J. Mortimore (IIAS); James Schellenberg (Sociology); Robert Jack Smith (Anthropology); Stanley West (Anthropology); Lewis Walker (Sociology)

### Latin American Studies Core Courses

**Anthropology**
- 545 Topics in Ethnology: Latin America 3 hrs.
- 598 Readings in Anthropology: Latin America 1-4 hrs.

**Economics**
- 589 Economics of Latin America 3 hrs.
- 598 Readings in Economics: Latin America 1-4 hrs.

**Geography**
- 511 South America 3 hrs.
- 512 Middle America 3 hrs.
- 598 Readings in Geography: Latin America 1-4 hrs.
- 609 Studies in Regional Geography: Latin America 3 hrs.
- 610 Seminar in Regional Geography: Latin America 3 hrs.

**History**
- 571 History of Mexico 3 hrs.
- 572 History of the La Plata Region 3 hrs.
- 598 Readings in History: Latin America 1-4 hrs.

**Language**
- 560 Studies in Spanish Literature:
  - Spanish-American Short Story 3 hrs.
- 560 Studies in Spanish Literature:
  - Contemporary Spanish-American Novel 3 hrs.
- 603 Spanish-American Modernism 3 hrs.

**Political Science**
- 549 Problems of Foreign Political Systems: Latin America 4 hrs.
- 598 Readings in Political Science: Latin America 1-4 hrs.
- 640 Seminar in Foreign Political Systems: Latin America 3 hrs.

**Sociology**
- 534 Studies in Ethnic Relations: Latin America 3 hrs.
- 598 Directed Individual Study 2-6 hrs.

### Latin American Studies Cognate Courses

**Anthropology**
- 534 Peasant Societies in Cross-Cultural Perspective 3 hrs.
Modern and Classical Languages

Economics
588 Economic Development  4 hrs.
688 Issues in Economic Development  3 hrs.

Geography
645 Geographical Factors in the Development of Non-Western Societies  3 hrs.
647 Developing Societies in the World Geopolitical Scheme  3 hrs.

Political Science
545 Theories of Political Development  3 hrs.
644 Seminar: Political Modernization  3 hrs.

Sociology
515 Social Conflict  3 hrs.
554 Sociological Analysis of Population  3 hrs.
556 Social Stratification  3 hrs.

Modern and Classical Languages (LANG)
Cole, Chairman; Professors Coutant, Mantero, Osmun; Associate Professors Alvarez, Ebling, Giedeman, Jones; Assistant Professors Cardenas, Felkel, Gardiner, Griffin, Hammack, Jasso, Kissel, Krawutschke, McGranahan, Orr, Reish, Teichert, Wyatt

LANGUAGE TEACHING COURSES

Open to Upperclassmen and Graduate Students

LANG 558 Modern Language Instruction (in French, German, Spanish, or other language)  3 hrs.

Required for modern language teaching majors; recommended for teaching minors. The principles underlying language learning and teaching methodology are treated, with particular attention to the audiolingual method of instruction. Emphasis is placed on practical problems encountered by the language teacher. Preferably, students should complete this course before beginning directed teaching. These methods courses will be offered regularly.

The comparable methods course for Latin 557, Teaching of Latin, is described under Latin offerings.

LANG 610 Applied Linguistics in the Teaching of Foreign Languages (French, German, Spanish)  3 hrs.

The application of modern linguistic concepts and descriptive techniques to the presentation of phonology, morphology, syntax and lexical problems in French (German, Spanish), particularly at the secondary level of instruction. The ultimate objective is to make the teacher sensitive to problems involved in the presentation and acquisition of structure. Prerequisite: LANG 558 or equivalent.

CRITICAL LANGUAGES — See LINGUISTICS for course descriptions

505 Basic Critical Languages

506 Intermediate Critical Languages
FRENCH (FREN)

Open to Upperclassmen and Graduate Students

FREN 544 Seminar in France 4 hrs.
A summer study of French language, literature, and culture concentrated at Grenoble and Paris. Designed especially for teachers and advanced college students of French, the course consists of four weeks of formal classes at the University of Grenoble with regularly scheduled lectures and discussions in the French language on questions relating to French history, institutions, social problems, linguistics, and teaching methods. The session at Grenoble is supplemented by twelve days of organized inspection of cultural monuments in Paris with full explanations by an instructor for all points visited. Each student submits a term paper investigating one phase of his studies of particular interest to him. Graduate or undergraduate credit.

FREN 550 Independent Study in French 1-3 hrs.
Directed, individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission. GPA of 3.0 in major.

FREN 551 Advanced French Grammar and Composition 3 hrs.
Intensive review of French structure and practice in composition. Prerequisite: Six hours of FREN 316-317 or equivalent.

FREN 552 Advanced French Conversation 3 hrs.
Intensive practice with spoken French. Prerequisite: Six hours of FREN 316-317 or equivalent.

FREN 560 Studies in French Literature 3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: Six hours selected from FREN 322, 328, 329, 550. Representative topics which may be treated in this area include:

Medieval Literature. Outstanding works from various genres of the medieval period.

Renaissance Literature. Outstanding works from the period, to include Montaigne, Rabelais and the Pléiade.

Seventeenth Century Literature—Preclassic period: Reforms and Malherbe, préciosité, Descartes, beginnings of classical drama, and Corneille. Also, classic period: significant works from the beginning of the reign of Louis XIV to his death.

Eighteenth Century Literature—Analysis of outstanding works of the period.


Nineteenth Century Literature. Studies in realism and naturalism.
Modern and Classical Languages


Open to Graduate Students Only

**FREN 600 French Classical Drama** 3 hrs.
*Drame classique.* Seventeenth century French tragedy and the comedies of Molière.

**FREN 601 Voltaire and Rousseau** 3 hrs.
*Voltaire et Rousseau.* Influential ideas of the eighteenth century expressed in
the writings of Voltaire and Rousseau.

**FREN 602 Contemporary French Novel** 3 hrs.
*Roman Contemporain.* Representative novels of the twentieth century.

**FREN 603 French Literary Criticism** 3 hrs.
Study of French literary criticism as a literary genre and as a basis of judg-
ment.

**FREN 604 Modern French Poetry** 3 hrs.
Evaluations of French poetry from the end of the Romantic period to the
present. Special emphasis will be given to major trends and leading personalities in
various schools.

**FREN 620 Seminar** 2-4 hrs.
Theme, genre or author selected from a particular period, or a topic from a
linguistic area.

**GERMAN (GER)**

Open to Upperclassmen and Graduate Students

**GER 510 German Life and Culture** 3 hrs.
Investigates cultural aspects necessary for an understanding of Germany.
Historic, geographic, social and religious factors are treated. Prerequisites: GER
316, 317, 326, and 327 or equivalent.

**GER 528 Survey of German Literature** 3 hrs.
A comprehensive study of German literature from its beginning through Ro-
manticism. Prerequisites: GER 316, 317, 326, and 327 or equivalent.

**GER 529 Survey of German Literature** 3 hrs.
A comprehensive study of German literature from German Realism to the
present. Prerequisite: GER 316, 317, 326, and 327 or equivalent.

**GER 550 Independent Study in German** 1-3 hrs.
Directed, individual study of a specific topic in a German literary or linguistic
area. Departmental approval is required for admission. Prerequisite: One course at
500-level, preferably among GER 528, 529 and 560.
GER 552 Advanced German Composition 3 hrs.
Intensive practice in composition and stylistics directed towards appreciation of literary and other written expression in German with work in free composition at an advanced level. Prerequisites: GER 316 and 317 or equivalent.

GER 553 Advanced German Conversation 3 hrs.
Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: GER 316 and 317 or equivalent.

GER 559 History of the German Language 3 hrs.
Survey of the development. Prerequisite: Six hours of 300-level German or above.

GER 560 Studies in German Language 3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: German 316, 317, 326, and 327 or equivalent. Representative topics which may be treated in this area include:

- The Novelle—Survey of the development with representative selections.
- Lyric Poetry—Survey of the development with significant selections.
- Nineteenth Century Drama—Primarily Kleist, Grillparzer, Hebbel, and Hauptmann.
- Twentieth Century Drama—Representative selections.

Open to Graduate Students Only

GER 600 Goethe 3 hrs.
Das Werk Goethes. The literary and cultural contributions of Goethe excluding Faust.

GER 601 Faust 3 hrs.
Goethes Faust. Significant selections from parts I and II of the poem.

GER 620 Seminar 2-4 hrs.
Ausgewählte Gegenstände aus dem Gebiete der Germanistik. Topic to be selected from a German literary or linguistic area.

GER 640 Introduction to Middle High German 3 hrs.
Introduction to Middle High German language and literature.

LATIN (LAT)

Open to Upperclassmen and Graduate Students and Others by Permission of the Instructor.

LAT 550 Independent Study in Latin 1-3 hrs.
Directed, individual study of a specific topic in Latin literary or linguistic area. Departmental approval required for admission.
LAT 552 Latin Writing 3 hrs.
Practice in the fundamentals of correct expression. Required for Latin majors.
Prerequisite: LAT 326 or 327 or equivalent.

LAT 557 Teaching of Latin 3 hrs.
For prospective teachers of Latin in the elementary or secondary school.
Principles, problems, and current practices. Required for Latin majors.

LAT 560 Studies in Latin Literature 3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: LAT 326 or 327 or equivalent. Representative topics which may be treated in this area include:
Satire – Rome as pictured in the conversations of Horace and the invectives of Juvenal. Readings on the origins and development of satire as a genre.
History – Reading and appraisal of Livy and of Tacitus as historians and literary artists.
Bucolic Poetry – Readings from Vergil’s Eclogues and Georgics plus selections from later writers of bucolic poetry and discussion of its development as a literary form.
Lyric and Elegiac – Broad readings in Roman poetry, centering around Catullus, Ovid, Martial and the other poets of love. Discussion of the origin and influence of elegy as a poetic form.
Medieval Latin – A study of the period 500–1500 A.D. when Classical Latin was blending into the new vernaculars to form eventual Romance Languages. Prose and poetic readings include a variety of themes reflecting the intellectual, cultural, and religious thinking of the times.

Open to Graduate Students Only

LAT 601 Roman Novel 3 hrs.
A study of the history and development of the Greek romance and the Roman novel. Extended readings of Petronius’s Satyricon and Apuleius’s Metamorphoses in Latin.

LAT 602 Comparative Classical Grammar 3 hrs.
Evolution, history and mutual relations of the Indo-European group of languages, especially Greek, Latin, and Sanskrit and their systems of phonology, inflection, syntax, and semantics.

LAT 620 Cicero: The Man and his Times 3 hrs.
A critical study of Cicero’s works for the information they give concerning Roman public and private life and the political history of the period.

LAT 621 Lucretius: De Rerum Natura 3 hrs.
A study of Lucretius’ De Rerum Natura both in the tradition of Epicurean philosophy and as a landmark in the development of the Latin didactic epic.
LAT 628 Seminar

Topic to be selected from a Latin linguistic or literary area.

RUSSIAN (RUSS)

Open to Upperclassmen and Graduate Students

RUSS 550 Independent Study in Russian

Directed, individual study of a specific topic in a Russian literary or linguistic area. Departmental approval required for admission.

RUSS 552 Advanced Russian Composition and Conversation

Practice in composition and stylistics directed towards a command of literary and other written expression in Russian combined with training in conversational Russian with an emphasis on the colloquial idiom. Prerequisites: RUSS 316, 317 and 328.

RUSS 560 Studies in Russian Literature

Topic varies according to genre, author, and period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus a student may take any or all of the offerings at various times. Prerequisites: RUSS 316, 317, 328, 375. Topics treated in this area include but are not restricted to:

- The Poetry of Pushkin: Emphasis on the tales and Byronic narratives.
- Classic Russian Short Stories: Emphasis on the works of Turgenev, Gogol, Tolstoy, and Leskov.
- Modern Russian Short Story: Emphasis on Bunin, Paustkovsy, Solzhenitsyn and Fedin.

SPANISH (SPAN)

Open to Upperclassmen and Graduate Students

SPAN 550 Independent Study in Spanish

Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission.

SPAN 552 Advanced Spanish Grammar and Composition

An advanced review of the intricacies and problems of Spanish Grammar and a study of syntax, stylistics, and methods of expressing oneself in original Spanish. This course is designed to be taught in Spanish. Prerequisite: One of the following courses: SPAN 322, 323, 328 or 329 or equivalent.

SPAN 560 Studies in Spanish Literature

Topic varies according to genre, author, or period and will be announced. Each
of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: SPAN 328 or 329 or equivalent. Representative topics which may be treated in this area include:

Cervantes – Don Quixote and other works of Cervantes together with his life and thought.

Seventeenth Century Theater – Main works of Lope de Vega through Calderón de la Barca.

Nineteenth Century – The Romantic Movement.

Nineteenth Century Novel – Development of the regional novel from Fernán Caballero through Blasco Ibáñez.

Generation of '98 – Thought and works of typical representatives such as Unamuno, Ortega Gasset, and Azorín.

Contemporary Theater – Evolution and analysis of the characteristics.

Spanish-American Short Story – Significant short stories along with the cultural and social background.

Contemporary Spanish-American Novel – The twentieth century novel along with the cultural and social background.

Open to Graduate Students Only

SPAN 600 Golden Age Prose 3 hrs.
Study and Comparison of the major prose types of the period with special attention to the picaresque novel.

SPAN 602 Contemporary Spanish Novel 3 hrs.
Study of forms and trends.

SPAN 603 Spanish-American Modernism 3 hrs.
Study of the rise and development of major works of the period.

SPAN 606 Medieval Spanish Literature 3 hrs.
Linguistic and literary analysis from the time of Cid to the fifteenth century.

SPAN 608 Nineteenth and Twentieth Century Spanish Poetry 3 hrs.
Study of trends from Romanticism to present times and analysis of works of the major poets.

SPAN 620 Seminar 2-4 hrs.
Topic to be selected from a Hispanic literary or linguistic area.

LANGUAGE

Open to Graduate Students Only – Please refer to The Graduate College section for course descriptions.

LANG 700 Master's Thesis 6 hrs.

LANG 710 Independent Research 2-6 hrs.
GENERAL LINGUISTICS COURSES

Open to Upperclassmen and Graduate Students

500 Introduction to Linguistics 4 hrs.
An introduction to the principles and practices in the major schools (e.g. structural, transformational), fields (e.g. historical, comparative), and applications (e.g. dialectology, lexicography) of modern linguistic study.

510 (400) Methods of Teaching English as a Second Language 4 hrs.
Study of the application of linguistics to the teaching of English to non-native speakers, with emphasis on current methods and materials for instruction and testing.

550 Studies in Linguistics and Related Disciplines 3 hrs.
An examination of the interrelationships between linguistics and another related discipline: e.g. between linguistics and psychology (psycholinguistics) or between linguistics and sociology (sociolinguistics). May be repeated for credit.

570 Studies in Linguistic Structures 4 hrs.
A detailed examination of the phonological, morphological, and syntactic structure of a given language. Various models for describing the structure of the language will be considered. May be repeated for credit.

575 (548) Studies in Languages of the World 3 hrs.
Intensive study of a group of languages (varying from semester to semester) that are either genetically related (e.g. Slavic languages), typologically similar (e.g. "tone" languages), or geographically proximate (e.g. African languages). May be repeated for credit.

580 Linguistic Field Techniques 3 hrs.
Interview techniques for the elicitation of oral language data, and methods of analysis of the data into significant linguistic units for their eventual arrangement in the form of a grammar and dictionary. Prerequisite: Consent of instructor.

598 Readings in Linguistics 1-4 hrs.
An opportunity for advanced students with good scholastic records to pursue the independent study of a linguistic subject not specifically covered by any of the courses in the Linguistics Department. Prerequisite: Permission of the instructor and chairman.

CRITICAL LANGUAGES COURSES

A "critical" language is an uncommonly taught foreign language which is not described in the Undergraduate Catalog as a regular offering of the Department of Modern and Classical Languages:

Arabic
Korean
Open to Upperclassmen and Graduate Students

505 (500) Basic Critical Languages  4 hrs.

Study of a contemporary critical language at the elementary level, utilizing realistic conversations based on frequently encountered sociocultural situations. The writing system will be introduced at an appropriate time, depending on the nature of the individual language.

506 Intermediate Critical Languages  4 hrs.

Continuation of LING 505, with greater attention to making the student self-reliant in conversation and to increasing his reading and writing skills with the help of a dictionary. Prerequisite: LING 505.

507 Advanced Critical Languages  4 hrs.

Continuation of LING 506, with greater emphasis on the grammatical structure of the language and on the development of more advanced reading and writing skills. Prerequisite: LING 506.

508 Reading Critical Languages  4 hrs.

Intensive practice in reading literature, newspapers, and other literary materials in the critical language, including sources from the student's major field of study. Prerequisite: LING 507.

509 Writing Critical Languages  4 hrs.

Intensive practice in writing a critical language to improve the student's ability to express himself effectively and to develop an individual style of composition. Prerequisite: LING 507.

Mathematics (MATH)

Clarke, Chairman; Professors Alavi, Chartrand, Hannon, Leja, Lick, McCully, Meagher, Petro, Powell, Seber; Associate Professors Blefko, Buckley, Giesy, Gioia, Goldsmith, Hackney, Hsieh, Kapoor, Northam, Riley, Schreiner, Sievers, Stoddart, Stoline, Turner, Yang; Assistant Professors Boyd, Eenigenburg, Laing, Nelson, White, Wright

Open to Upperclassmen and Graduate Students

506 Programming for Computers  3 hrs.

Designed to give preparation in the organization and general use of high speed computing machines used in scientific and engineering computations. Two computer languages will be discussed and used to prepare programs. Problems such as exponential, multiplication and inversion of matrices, numerical integration, and solution of differential equations will be prepared for the computer. Prerequisite: MATH 230, or 272, or 222.
507 Numerical Analysis 3 hrs.
Numerical methods involving polynomial evaluation, series approximations, numerical integration, interpolation solution of linear and differential equations, linear programming, least squares and minimax approximations. Topics include: Chebyshev polynomials, Legendre polynomials, Weierstrass Theorem, Bernstein polynomials, Runge-Kutta methods, Generalized Rolle’s Theorem, Taylor’s Theorem, Newton’s method, False Position method, economization of power series, Minimax Theorem, forward differences, central differences, Simpson’s rule, Boole’s rule, and predictor-corrector methods. Prerequisite: MATH 506 (MATH 223 or 274 recommended)

508 Automatic Programming Systems 3 hrs.
A thorough study of the internal organization of the Fortran Compiler. Each student will be required to construct a compiler. Prerequisite: MATH 506.

520 General Topology I 3 hrs.
Topics include: separation axioms, continuity, compactness, connectedness, product and quotient spaces, metric spaces. Prerequisite: MATH 570 or permission of instructor.

530 Linear Algebra 3 hrs.
Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 330 or 332.

540 Advanced Geometry 3 hrs.
Topics to be selected from projective geometry, algebraic geometry, differential geometry, or non-euclidean geometry. Prerequisite: Consent of instructor.

550 Teaching of Secondary Mathematics 3 hrs.
In this course consideration is given to curriculum problems and trends in secondary school mathematics and to specific problems of teaching mathematics effectively to secondary school students. Prerequisite: MATH 330 or 332.

552 Teaching of Elementary Mathematics 2 hrs.
Consideration is given to curriculum problems and trends in elementary school mathematics and to specific problems of teaching mathematics effectively to elementary school children. Prerequisite: MATH 150.

560 Probability 3 hrs.
A first course in mathematical probability intended for upper class students and first-year graduate students. This course considers probability spaces; mathematical expectation; moment-generating functions; special discrete and continuous distributions; independence; transformations of variables; sampling distributions; asymptotic theory. Prerequisite: MATH 223 and 332. (This course will not be offered after 1974. See MATH 362 or 660.)

561 Mathematical Statistics 3 hrs.
A continuation of Math 560. This course is a basic introduction to mathematical statistics. The emphasis is on theory and concepts, although some applications are considered. Topics include: point estimation, maximum likelihood estimates;
Mathematics

sufficiency and completeness; limiting distributions; order statistics; statistical hypothesis, likelihood ratio tests; correlation and regression. Prerequisite: MATH 560. (This course will not be offered after 1974. See MATH 363 or 660.)

562 Statistical Analysis I 4 hrs.
A first course in statistics for upper class students and first-year graduate students, with primary emphasis on applications. Topics include: elementary probability, combinatorial probability, binomial, Poisson and hypergeometric distribution with applications; normal, chi-square, F, and t distributions with applications to estimation, hypothesis testing, and confidence intervals; curve fitting; linear regression; non-parametric techniques. Followed by Mathematics 662. Prerequisite: MATH 222, or 270, or 272.

570 Advanced Calculus 3 hrs.
Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation. Riemann integral, sequences and series of functions. Prerequisite: MATH 310 or 332.

571 Foundations of Analysis 3 hrs.
Fundamental concepts of real analysis, functions of one variable, topology of E^n, Riemann-Stieltjes integral. Prerequisite: Approval of adviser.

574 Introduction to Ordinary Differential Equations 3 hrs.
Methods of solution, linear differential equations, ordinary and singular points, series solutions. Bessel and Legendre functions, boundary value problems, systems of equations, non-linear equations. Prerequisite: MATH 230 and 274, or consent of instructor.

575 Introduction to Partial Differential Equations 3 hrs.
Quasi-linear equations of the first order, linear and quasi-linear equations of the second order, separation of variables and Fourier series; solutions of Laplace equations, heat equations and wave equations, as examples of elliptic, parabolic and hyperbolic equations. Prerequisite: MATH 574 or consent of instructor.

576 Introduction to Complex Analysis 3 hrs.
Complex numbers, elementary functions, differentiation of complex functions, integration, series, residue theory, conformal mappings. Graduate students should not elect both 576 and 676. Prerequisite: MATH 223, or 270, or 272.

580 Number Theory 3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330 or 332.

595 Seminar in Elementary Mathematics Education 1-3 hrs.
Current curriculum problems in the area of elementary mathematics education are identified and discussed. Students are required to identify a problem and give both an oral and written report on research in that area. Prerequisite: MATH 552.

599 Independent Study in Mathematics 1-3 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen
and arrangements are made to suit the needs of each particular student. Prerequisite: Approval of chairman of department.

**Open to Graduate Students Only**

**602 Fourier Series and Boundary Value Problems**

Topics covered include Fourier Series and Fourier Integrals and a further study of boundary value problems with special functions beyond those covered in MATH 574 and 575. Prerequisites: MATH 574 and 570, or equivalent.

**604 Operational Mathematics**

Topics covered include the study of the theory and application of Laplace Transform and other linear integral transformations. Prerequisites: MATH 575 and 576, or equivalent.

**605 Theory of Optimization**

Necessary conditions for various classical and control problems, sufficient conditions, approximation. Prerequisite: MATH 571 and 574.

**606 Data Structures**

Introduces and compares the alternatives for representing and manipulating data. Specific examples of data structures will be chosen from the areas of scientific programming, operating systems, simulation, and compiling. Prerequisite: MATH 506.

**607 Complex Information Processing**

The computer as a device for symbol manipulation; data representation; complex problem solving and decision making by machine; mechanical pattern recognition; modeling of psychological processes; adaptive systems; and information retrieval. Prerequisite: MATH 506.

**608 Linear Programming**

Linear inequalities; convex geometry; optimization in linear systems; zero-sum games; applications. Prerequisites: MATH 506, 530 and 570.

**609 Studies in Applied Math**

Advanced work organized around topics related to the field of study indicated at the time the course is scheduled. Students may take this course more than once.

**620 General Topology II**

Topics include: continuous functions, uniform spaces, function spaces, paracompactness. Prerequisite: MATH 520.

**621 Algebraic Topology**

Topics will include: simplicial complexes, homology and cohomology theories, including singular homology theory. Prerequisite: MATH 520.

**623 Point Set Topology**

Complete metric spaces; local connectedness; Hahn-Mazurkiewicz Theorem;
Mathematics

continuum theory; fixed point theorems; dimension theory. Prerequisite: MATH 520.

629 Studies in Topology 3-4 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

630 Abstract Algebra I 3 hrs.
A general study of groups, rings, and modules. A specific study of finite groups, polynomial rings, and Euclidean domains. Prerequisite: MATH 530.

631 Abstract Algebra II 3 hrs.
A continuation of 630. Modules, structure theory of modules over principal ideal domains, applications to finitely generated abelian groups, rational and Jordan canonical forms of a linear transformation, Bilinear and quadratic forms. Prerequisite: MATH 630.

632 Field Theory 3 hrs.
Algebraic and transcendental extensions of fields. Galois theory, and valued fields. Prerequisite: MATH 630.

636 Homological Algebra I 3 hrs.
This course and MATH 637 constitute a two semester study of homological algebra. Topics discussed include modules, homology of complexes, extensions and resolutions, categories and functors, adjoint functors, derived functors, and special sequences. Prerequisite: MATH 631.

637 Homological Algebra II 3 hrs.
A continuation of MATH 636. Prerequisite: MATH 636.

639 Studies in Algebra 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

640 Graph Theory I 3 hrs.
Fundamental concepts: eulerian graphs; adjacency and incidence matrices; trees; the Reconstruction Problem. Prerequisite: Approval of adviser.

645 Studies in Graph Theory Variable
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once. Prerequisite: Approval of instructor.

649 Studies in Geometry 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

656 Teaching of College Mathematics 2 hrs.
In this course consideration is given to curriculum problems and trends in
post-high school mathematics; research on specific problems of teaching mathematics effectively to college students will be emphasized. Prerequisite: Admission to the Specialist program in Mathematics.

Probability spaces; expectation; generating functions; special discrete and continuous distributions; sampling and sampling distributions; asymptotic theory; point estimation; hypotheses; likelihood ratio tests; correlation and regression. Prerequisite: MATH 570 and 530 (possibly concurrently).

661 Multivariate Statistical Analysis 3 hrs.
A theoretical treatment of multivariate statistical problems and techniques. The topics of this course include: multivariate normal distribution theory; quadratic forms; multiple and partial correlation; sample correlation coefficient; Hotelling's $T^2$-statistic; Wishart distribution; applications to tests of the mean vector and covariance matrix; general linear hypothesis. Prerequisite: MATH 660 or consent of instructor.

662 Statistical Analysis II 3 hrs.
Least squares; regression models; partial and multiple correlation; multiple comparison procedures; analysis of variance. Prerequisite: MATH 363 or 562.

663 Sampling Theory and Applied Statistics 2-4 hrs.
An introduction to the statistical problems of sample surveys. Both theory and application are considered. Topics include: simple and stratified sampling; systematic sampling; cluster sampling; subsampling; application of statistical techniques to applied problems.

664 Design of Experiments 3 hrs.
A general survey of topics in experimental design. Topics include: contrasts; orthogonal components; Latin squares; incomplete block designs; factorial experiments; analysis of variance and covariance; applications.

665 Theoretical Statistics 3 hrs.
Mathematical statistics is considered in a decision theoretic framework. The decision problem; loss and risk functions; Bayes procedures; minimax procedures; admissibility; complete classes; sufficiency; hypothesis testing and estimation.

667 Introduction to Random Processes 3 hrs.
This course is a treatment of random sequences and Markov processes. Discrete and continuous Markov processes; transition and rate matrices; Chapman-Kolmogorov equations; Kolmogorov systems; transient and limiting behavior; examples and illustrations: random walks, birth-and-death processes, etc.; stationary processes. Prerequisites: MATH 571, and 660 (or 362).

The subject matter for this course is variable. Advanced work is considered and organized around topics not usually considered in the other courses.
Mathematics

670 Measure and Integration 3 hrs.

The basic theory of measure and integration, including such topics as Lebesque measure, abstract measures, measurable functions, product measures, $L^p$ spaces, Radon-Nikodym theorem. Prerequisite: MATH 571.

671 Introduction to Functional Analysis 3 hrs.

Metric spaces; category; compactness; Banach spaces; Hahn-Banach theorem; completely continuous operators; Hilbert spaces; self-adjoint operators; elementary spectral theory. Prerequisite: MATH 670.

672 Functional Analysis 3 hrs.

A continuation of MATH 671 to include such topics as linear topological spaces, locally convex spaces and Banach algebras. Prerequisite: MATH 671.

673 (572) Real Analysis 3 hrs.

Uniform convergence of sequences and series of functions; Fourier series; functions of several variables; Lebesque measure; measurable functions; Lebesque integration on the real line. Prerequisite: MATH 571.

674 Theory of Ordinary Differential Equations 3 hrs.

Systems of equations; existence and uniqueness of solutions; analyticity with respect to parameters and initial conditions; linear differential equations; isolated singularities, asymptotic solutions at infinity; stability. Prerequisites: MATH 530, 574 (576 or 676 recommended).

676 Complex Analysis I 3 hrs.

Topics include: Cauchy Theory, series expansion, power series, types of singularities, calculus of residues.

677 Complex Analysis II 3 hrs.

A continuation of MATH 676. Prerequisite: MATH 676

679 Studies in Analysis 3 hrs.

Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.


Application of logic and set theory to computing machine design; theories of computability and computation; propositional calculus; Boolean algebra in design of logical nets; proofs and decision procedures; computable functions; and application of graph theory to computer systems. Prerequisite: MATH 506.

681 Introduction to Computability and Unsolvability 3 hrs.

Turing machines; Markov algorithms; recursive functions. Equivalence between various formalizations. Church-Turing thesis. Algorithmically unsolvable problems. Prerequisite: MATH 506.

682 Introduction to Artificial Intelligence 3 hrs.

Game-playing programs; theorem-proving programs; general problem-solving
College of Arts and Sciences

programs; pattern-recognizing programs; question-answering programs. Pre-
requisite: MATH 506.

684 Geometry of Numbers 3 hrs.
Theorems of Hermite on quadratic forms; Minkowski’s Fundamental Theo-
rems and consequences; lattices, critical determinants, successive minima, theorems
of Mahler and Blichfeldt, packing and covering.

686 Theory of Arithmetic Functions 3 hrs.
Convolutions of arithmetic functions, unique factorization in rings of functions
under various convolutions, invertibility of functions, Divisor and totient functions:
average and maximal orders of arithmetical functions; the Dirichlet divisor problem
and related problems. Prerequisite: Permission of instructor.

687 Additive Number Theory 3 hrs.
Topics selected from: addition of sequences of integers, density relationships,
sequences with no three terms in arithmetic progression, sequences and sets of
multiples, partitions, Waring’s problem, sieve methods.

688 Analytic Number Theory 3 hrs.
Elementary methods in the analytic theory of numbers: the theory of dis-
tribution of the primes, the Prime Number Theorem, Dirichlet’s Theorem on primes
in an arithmetic progression, Transcendental methods: the Riemann Zeta-function
and its arithmetical applications, Tauberian methods in the theory of prime num-
bers: Dirichlet series. Prerequisite: MATH 571.

689 Studies in Number Theory 3 hrs.
Advanced work organized around topics related to the field of study indicated
in the title. Students may take this course more than once.

690 Seminar in Applied Mathematics* 1-3 hrs.

692 Seminar in Topology* 1-3 hrs.

693 Seminar in Algebra* 1-3 hrs.

694 Seminar in Graph Theory* 1-3 hrs.

695 Seminar in Mathematics Education* 1-3 hrs.

696 Seminar in Probability and Statistics* 1-3 hrs.

697 Seminar in Analysis* 1-3 hrs.

699 Reading and Research 1-6 hrs.

Open to Graduate Students Only—Please refer to The Graduate College section for
course descriptions

712 Professional Field Experience 2-12 hrs.

*The approval of the instructor is required for each seminar.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>720</td>
<td>Specialist Project</td>
<td>2-6 hrs.</td>
</tr>
<tr>
<td>730</td>
<td>Doctoral Dissertation</td>
<td>15 hrs.</td>
</tr>
<tr>
<td>735</td>
<td>Graduate Research</td>
<td>2-10 hrs.</td>
</tr>
</tbody>
</table>

The following courses are primarily for teachers and ordinarily will not apply towards the M.A. in Mathematics.

**610 Concepts of Mathematics**
- 4 hrs.
  - This course will include the following topics: sets, relations, functions, equivalence and other relations, axiomatics, logical structure of elementary algebra, mathematical induction, integers, rational and real numbers, cardinals. Prerequisite: Consent of adviser.

**611 Mathematical Applications**
- 4 hrs.
  - An introduction to the philosophy of, machinery for, and methodology in applications of mathematics. Includes topics in discrete probability, statistical significance tests with application to multiple choice examinations, numerical approximation, optimization and graphical linear programming, linear differential equations with applications to growth and decay. Prerequisite: Consent of the adviser.

**614 Mathematical Logic**
- 4 hrs.
  - This course will include the following topics: sentential connectives, theory of influence, symbolizing language, quantifiers, formal and informal proofs. Prerequisite: Consent of the adviser.

**615 Intermediate Analysis**
- 4 hrs.
  - This course will include the following topics: limits, continuity, differentiation, integration, applications. It will stress concepts rather than techniques. Prerequisite: Consent of adviser.

**616 Survey of Algebra**
- 4 hrs.
  - This course will discuss groups, rings, integral domains and fields, including such topics as homomorphisms and isomorphisms, subalgebras and ideals, with examples involving permutation groups, transformation groups, polynomial rings and finite fields. In addition there will be a discussion of basic linear algebra, including linear spaces, linear transformations, matrices, applications to geometry and systems of equations. Prerequisite: MATH 610 or equivalent.

**619 Numerical Methods**
- 4 hrs.
  - This course will include the following topics: automatic programming, systems for digital computers, matrices, inequalities, areas, other selections from numerical analysis. The participants will actually use the computer. Prerequisite: Consent of adviser.

**650 Mathematics for Elementary School Teachers**
- 2 hrs.
  - Emphasizes the concepts and foundations of the mathematics commonly taught in elementary school, and of associated problems of learning and teaching. Each student will be expected to study and report on some special problem or aspect of the teaching of arithmetic.
College of Arts and Sciences

652 Mathematics for Junior High School Teachers 2 hrs.

This course is designed to acquaint the student with modern trends in Junior High School Mathematics. Several current programs will be studied to determine what topical content should be included and the treatment to be given to this content in a modern mathematical program for Junior High School students.

654 Curriculum Studies in Algebra and Geometry 4 hrs.

Current recommendations, materials, and methods related to teaching mathematics in secondary schools are used as the basis for reports and projects to be prepared and given by the students. Prerequisite: Consent of adviser.

Medieval Studies

The Medieval Institute of Western Michigan University offers an interdisciplinary program leading to the Master of Arts in Medieval Studies. The program provides preparation in medieval and Renaissance history, languages, literatures, philosophy, religion, and the arts. This flexible course of studies presents, in one year, opportunities for broad preparation in medieval studies as background for intensive work on the doctoral level.

Western Michigan University offers an academic environment appropriate for the study of the Middle Ages. The University is the host institution for the annual Conference on Medieval Studies and the Medieval Institute publishes a periodical, Studies in Medieval Culture.

The faculty members involved in the Medieval Institute are listed below with their disciplines:

George T. Beech (History), Guntram G. Bischoff (Religion), Joan Ann Boucher (Music), Ernst A. Breisach (History), Donald P. Bullock (Music), Samuel I. Clark (Honors College), Roger L. Cole (German), Audrey Davidson (General Studies), Clifford Davidson (English), Robert S. Davis (English), Ronald W. Davis (History), George H. Demetrikopoulos (Medieval Institute), Ollin J. Drennan (General Studies), Elizabeth Dull (Art), D.P.S. Dwarikesh (Linguistics), David Ede (Religion), E. Rozanne Elder (History), Robert Felkel (Spanish), Robert R. Fink (Music), Stephanie Fisher (English), Jack J. Frey (Music), Fritz Frurup (Instructional Communications), Constantine J. Giana- karis (English), Elizabeth Giedeman (Latin), Otto Gründler (Religion), Paulie Hambuck (French), Susan Huston (History), Robert P. Johnston (Art), Louis Kiraldi (Library), Johannes A. Kissel (German), Peter Krawutschke (German), Paul L. Maier (History), Charles E. Meyer (Art), Ralph N. Miller (English), Donald Milton (Philosophy), Emanuel Nodel (History), George F. Osmun (Classics), Robert A. Palmatier (Linguistics), Thomas Seiler (English), David A. Sheldon (Music), Rudolf J. Siebert (Religion), John R. Sommerfeldt (History), Jon Stott (English), Larry E. Syndergaard (English).

Course Offerings

Art

520 Independent Study in Art History 2-3 hrs.
525 Seminar in Art 2 hrs.
583 History of Medieval Art 3 hrs.
585 History of Renaissance Art 3 hrs.
620 Independent Study in Art History 2-3 hrs.
## Arts and Sciences

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</table>
| 504         | Foreign Studies Seminar: Social Sciences                   | 1-6 hrs.
| 505         | Foreign Studies Seminar: Humanities                        | 1-6 hrs.

## Communication Arts and Sciences

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>526</td>
<td>History of Theatre: From the Beginnings to the English Renaissance</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>
| 598         | Independent Studies                                         | 1-4 hrs.

## Economics

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
</table>
| 598         | Readings in Economics         | 1-3 hrs.

## English

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>529</td>
<td>Medieval English Literature</td>
<td>4 hrs.</td>
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<tr>
<td>530</td>
<td>Medieval Continental Literature in English Translation</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>531</td>
<td>Chaucer</td>
<td>4 hrs.</td>
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<tr>
<td>532</td>
<td>Sixteenth Century Literature</td>
<td>4 hrs.</td>
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<tr>
<td>543</td>
<td>Elizabethan and Jacobean Drama</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>554</td>
<td>Milton</td>
<td>4 hrs.</td>
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<tr>
<td>555</td>
<td>Studies in Major Writers</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>598</td>
<td>Readings in English</td>
<td>2-4 hrs.</td>
</tr>
<tr>
<td>642</td>
<td>Studies in Drama</td>
<td>3 hrs.</td>
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<tr>
<td>653</td>
<td>Studies in Shakespeare: Comedy</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>660</td>
<td>Methods of Research in English</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>661</td>
<td>Seminar in English</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>676</td>
<td>Early English</td>
<td>3 hrs.</td>
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</tbody>
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## Graduate Studies

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>700</td>
<td>Master's Thesis</td>
<td>6 hrs.</td>
</tr>
<tr>
<td>710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
</tr>
<tr>
<td>712</td>
<td>Professional Field Experience</td>
<td>2-12 hrs.</td>
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## History

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>534</td>
<td>Medieval France</td>
<td>3 hrs.</td>
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<tr>
<td>535</td>
<td>Medieval England</td>
<td>3 hrs.</td>
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<tr>
<td>552</td>
<td>The Medieval Church</td>
<td>3 hrs.</td>
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<tr>
<td>553</td>
<td>Life in the Middle Ages</td>
<td>3 hrs.</td>
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<tr>
<td>554</td>
<td>The Renaissance</td>
<td>3 hrs.</td>
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<tr>
<td>555</td>
<td>The Reformation</td>
<td>3 hrs.</td>
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<tr>
<td>587</td>
<td>Ancient and Medieval Africa</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>592</td>
<td>Historical Literature</td>
<td>3 hrs.</td>
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<tr>
<td>593</td>
<td>Philosophy of History</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>598</td>
<td>Independent Readings in History</td>
<td>2-3 hrs.</td>
</tr>
<tr>
<td>652</td>
<td>Medieval Studies</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>654</td>
<td>Studies in the Renaissance and Reformation</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>646</td>
<td>Seminar in Ancient and Medieval History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>656</td>
<td>Seminar in Early Modern European History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>690</td>
<td>Historical Method</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>692</td>
<td>Studies in Historical Literature</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>699</td>
<td>Historical Essay</td>
<td>4 hrs.</td>
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</tbody>
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### College of Arts and Sciences

#### Languages, Modern and Classical

**French**
- 544 Seminar in France [4 hrs.]
- 550 Independent Study in French [1-3 hrs.]
- 560 Studies in French Literature: Medieval [3 hrs.]
- 560 Studies in French Literature: Renaissance [3 hrs.]
- 620 Seminar [2-4 hrs.]

**German**
- 510 German Life and Culture [3 hrs.]
- 528 Survey of German Literature (Early) [3 hrs.]
- 550 Independent Study in German [1-3 hrs.]
- 559 History of the German Language [3 hrs.]
- 560 Studies in German Literature [3 hrs.]
- 620 Seminar [2-4 hrs.]
- 640 Introduction to Middle High German [3 hrs.]

**Latin**
- 550 Independent Study in Latin [1-3 hrs.]
- 560 Studies in Latin Literature: Medieval Latin [3 hrs.]

**Russian**
- 550 Independent Study in Russian [1-3 hrs.]

**Spanish**
- 550 Independent Study in Spanish [1-3 hrs.]
- 560 Studies in Spanish Literature [3 hrs.]
- 606 Medieval Spanish Literature [3 hrs.]
- 620 Seminar [2-4 hrs.]

**Librarianship**
- 602 History of Books and Printing [3 hrs.]

**Linguistics**
- 598 Readings in Linguistics [1-4 hrs.]

**Music**
- 517 Collegium Musicum [1 hr.]
- 570 Introduction to Musicology [3 hrs.]
- 598 Readings in Music [1-4 hrs.]
- 670 Seminar in Musicology [1 hr.]
- 671 Seminar in Musicology [1 hr.]
- 672 Medieval Music [3 hrs.]
- 673 Renaissance Music [3 hrs.]

**Philosophy**
- 598 Readings in Philosophy [1-4 hrs.]

**Religion**
- 500 Historical Studies in Religion: Christian Theology to 1500 [2-4 hrs.]
Philosophy (PHIL)
Ellin, Chairman; Associate Professors Falk, Sheridan; Assistant Professors Dilworth, Pritchard

There is no graduate program in philosophy at WMU. Graduate students in other areas seeking to add analytical depth and perspective to their major studies through the study of philosophy should consult with the Department Chairman, 3100 Friedmann Hall.

Open to Upperclassmen and Graduate Students

598 Readings in Philosophy 1-4 hrs.

Research on some selected period or topic under supervision of a member of the Philosophy faculty. Approval of instructor involved and chairman of the Department's individualized courses must be secured in advance of registration.

Physics (PHYS)
Dotson; Chairman; Professors Bernstein, Bradley, Derby, Hardie, Kruglak, Nichols, Oppliger, Zietlow; Associate Professors Carley, Kaul, Kusmiss, Shamu, Soga; Assistant Professors Herman, Todd

Open to Upperclassmen and Graduate Students

520 Analytical Mechanics 3 hrs.

The topics studied include the dynamics of a single particle and the motion of a system of interacting particles. Techniques of vector analysis are used frequently and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisites: PHYS 211, MATH 223. The latter may be taken concurrently.

540 Electricity and Magnetism I 3 hrs.

This is a theoretical course providing a thorough investigation of electric and magnetic fields. The applications of the theorems of Stokes and Gauss are emphasized and Maxwell's Equations are developed. Prerequisites: PHYS 212 or consent of instructor, and MATH 223.

541 Electricity and Magnetism II 3 hrs.

This course is a continuation of 540 and is an elective for majors wishing advanced work in field theory. Maxwell's Equations and their applications to topics such as time-dependent fields, wave guides, and radiation will form the principal topics of the course. Prerequisite: PHYS 540.
552 Applied Spectroscopy 3 hrs.

This is a combined class and laboratory course on methods of emission spectrographic analysis. The topics studied include the history of spectroscopy, the origin of line spectra, spectrographic instruments, and modern techniques of qualitative and quantitative analysis. Prerequisites: PHYS 111 or 211, or consent of instructor.

560 Modern Physics I 3 hrs.

This course includes an introduction to quantum mechanics with selected applications, including one-dimensional potentials, the harmonic oscillator, one-electron atom, and the helium atom. A knowledge of elementary differential equations is assumed. Recommended for seniors. Prerequisites: PHYS 212 and 520, or consent of instructor.

561 Modern Physics II 3 hrs.

Here the quantum theory covered in Physics 560 is applied to several areas of atomic and nuclear physics. Topics covered include atomic shell structure, atomic spectroscopy, x-rays, collision theory, general properties of nuclei, the nuclear two-body problem, nuclear reactions, and nuclear models. Prerequisite: PHYS 560.

563 Introduction to Solid State Physics 3 hrs.

This course is designed to acquaint the student with the basic techniques for describing the structure and properties of solids. After an initial study of symmetry and crystal structure the following topics are treated: the cohesion of solids; x-ray and neutron diffractions; the elasticity of solids; lattice vibrations; the thermal and electrical properties of solids, with particular emphasis on metals. Prerequisites: PHYS 560 or consent of instructor.

566 Advanced Laboratory 2-3 hrs.

The objectives of this course are to provide the student with experiences in the use of modern laboratory equipment and with a better understanding of several important physical phenomena. The student will select experiments from a list covering three areas: atomic, solid-state, and nuclear physics. A portion of the semester may be devoted to studying a problem in depth. The course consists of two or three three-hour laboratory periods each week. The course may be repeated for credit. Prerequisites: PHYS 342 and either 560 or 360 (560 or 360 may be elected concurrently with 566).

598 Selected Topics 1-4 hrs.

This course affords an opportunity for advanced students with good scholastic records in Physics to pursue independently the study of some subject of interest to them. Prerequisite: Consent of instructor.

Open to Graduate Students Only

622 Quantum Mechanics I 3 hrs.

This course is designed to provide a foundation of fundamental techniques of calculation for more advanced work in the physics and chemistry of atoms, molecules, nuclei and solids. An attempt will be made to provide an understanding of the principles of the subject through the Schroedinger-Heisenberg equations as well as through the formal operator theory of Dirac. The simple and representative systems
of the simple harmonic oscillator and the one electron atom will be discussed. The course will be confined almost solely to the non-relativistic approximation.

623 Quantum Mechanics II

This course is a continuation of 622. It employs state-vector formulation to study several problems of general interest such as time-dependent perturbation theory, systems of identical particles, and introductory relativistic quantum mechanics. Prerequisite: PHYS 622.

624 Statistical Mechanics

Statistical methods, employing ensemble theory, are used to study the equilibrium properties of systems having many degrees of freedom. Classical and quantum theories are developed and applied to selected problems of interest in physics and chemistry. The relationships between microscopic models and macroscopic properties are emphasized.

630 Classical Mechanics

Lagrange's equations are developed early in the course and are used in the analysis of both point-mass and rigid-body problems. The modifications of classical mechanics required by the theory of relativity are reviewed. The Hamilton equations of motion and Hamilton-Jacobi theory are introduced, and some of the analogies between classical and quantum mechanics are discussed.

660 Nuclear Physics

This course emphasizes low-energy nuclear physics and covers the following areas: basic properties of nuclei, the two body problem, scattering, electromagnetic decay of nuclear levels, and nuclear models.

662 Electricity and Magnetism

This course deals with the static electromagnetic field and its interaction with matter. The applications of boundary value problems are emphasized.

664 Solid State Physics

In this course the following topics are treated: superconductivity, the dielectric properties of solids, ferroelectricity, diamagnetism and paramagnetism, ferromagnetism and antiferromagnetism, magnetic resonance, optical phenomena in insulators, and point defects and dislocations in solids. Prerequisite: PHYS 563.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.
I. AMERICAN POLITICAL SYSTEM

Open to Upperclassmen and Graduate Students

504 Making of Public Policy in the U.S.
3 hrs.
A study of the formation of public policy at the local, state, and national levels with emphasis on the impact of decision processes upon policy outcomes.

506 Problems of American Government
3-4 hrs.
A critical examination of major problems facing national, state, or local government with emphasis upon contemporary efforts and studies designed to understand or solve such problems. Topics will vary from semester to semester and students may repeat the course.

520 Constitutional Law
3 hrs.
Study of leading American constitutional principles as they have evolved through major decisions of the U.S. Supreme Court. Emphasis on judicial review, federalism, separation of powers, commerce and taxation.

522 Civil Liberties and Civil Rights
3 hrs.
An examination of Supreme Court responses to First Amendment, criminal procedure, and equal protection questions with particular emphasis on political, social and policy-making aspects.

524 Judicial Behavior
3 hrs.
Role of the judiciary as policy maker. Study of judicial behavior and decision making processes utilizing modern research tools for analysis.

526 Administrative Law and Public Regulation
3 hrs.
A study of the requirements for, and the limits on, the exercise of administrative powers by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to the extent of governmental regulation and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determination. Prerequisites: PSCI 200 or a course in Economics.

530 Problems in Public Administration
2-4 hrs.
Consideration of issues and problems of current interest in the field of public administration. The course is intended to provide advanced work for undergraduates and to serve as an introduction to the field for graduate students without previous training in public administration.

532 The Bureaucracy
3 hrs.
An analysis of the role of public bureaucracies in the decision process of government.
534 Administrative Theory 3 hrs.

A study of descriptive theories of organizational and administrative behavior relevant to government administrative agencies. Theories of complex formal organizations, decisional theories and systems theories will be analyzed.

Open to Graduate Students Only

600 Seminar: National Politics 3 hrs.

Research and study in selected topics in National politics. Topics will vary from semester to semester and students may repeat the course.

601 Seminar: State Politics 3 hrs.

Research and study of selected topics in state politics. Topics will vary from semester to semester and students may repeat the course.

602 Seminar: Urban Politics 3 hrs.

Examination of the literature on American urban politics and application of this literature to the development or refinement of some theories of community political behavior. The city will be used as a laboratory for the advancement of theoretical and empirical knowledge of politics.

620 Seminar: Public Law 3 hrs.

Study and research of major topics of interest in constitutional law, civil liberties or administrative law. Topics will vary from semester to semester and students may repeat the course.

622 Seminar: The Judiciary 3 hrs.

Study and research of major topics of interest in the judicial process, judicial behavior, decision making and judicial systems. Topics will vary from semester to semester and students may repeat the course.

630 Seminar: Public Administration 3 hrs.

Study and research of selected major topics in public administration. Independent reports will be made. Subject matter will vary and the course may be repeated.

II. FOREIGN AND COMPARATIVE POLITICAL SYSTEMS

Open to Upperclassmen and Graduate Students

540 Western Democratic Systems 3 hrs.

A comparative study of the established democracies of North America, Western Europe, and older Commonwealth states. Examines the conflict in western democracies between traditional ideology, structures, procedures and contemporary conditions. Analyzes comparatively and theoretically the constitutional and political party systems, political culture and behavior.

542 Administration in Developing Countries 3 hrs.

A consideration of the relation of administrative structure and technique to the political, economic and social problems of the developing countries. Special attention to the role of the bureaucracy in the political system and the nature of, and obstacles to, administrative modernization.
543 Politics and Institutions of South Asia  3 hrs.

Twentieth century experiments in Asian democracy are analyzed in India and Pakistan. Consideration is given to historical origins and contemporary problems. Particular emphasis is on the dynamics of the political process, the place and nature of ideologies, patterns of leadership, the quest and adaptability of political parties, the quantitative and qualitative aspects of articulate interests, the limits of political communication, methods of decision-making, the implementation of rules and the available devices for conflict resolution.

544 The Military and Political Systems  3 hrs.

Old states as well as new ones are confronted with problems of a military nature which have an important bearing on the operation and development of their respective political systems. This course is designed to study the role of the military in advanced and less developed countries. Attempts will be made to identify the advantages and disadvantages, the strength and weaknesses of the military nexus. Organized as a pro-seminar.

545 Theories of Political Development  3 hrs.

Examines various theories of political development and analyzes their relevance to both underdeveloped and modernized states. Considers such problems as national integration, political socialization and communication. Organized as a pro-seminar.

547 Political Modernization of Japan and Korea  3 hrs.

Intensive analysis of the political system of Japan and Korea with developmental perspective. Their different political styles will be compared. Their different rates of development will be compared in terms of performance of the various political functions.

548 Asian Communism  3 hrs.

An examination of Asian communism. Emphasis is on the development of Chinese communism, though North Korean, North Vietnamese and communist movements in other Asian countries are included. The course covers ideology, revolutionary tactics, strategies, and prospects. Organized as a pro-seminar.

549 Problems of Foreign Political Systems  3-4 hrs.

Course will consider selected problems of the governments and political systems of Western and Eastern Europe, Asia, Africa, and Latin America. The specific problems, topics, and countries to be studied will be announced each semester. May be repeated.

Open to Graduate Students Only

640 Seminar: Foreign Political Systems  3 hrs.

Study and research on major topics dealing with the political systems of selected countries. Independent research and seminar presentations for each student are stressed. The country to be studied may be located in Europe, Asia, Africa or Latin America, and will be announced each semester. May be repeated.

642 Seminar: Cross-National Political Analysis  3 hrs.

Study and research on major topics of comparative interest. Independent
research and seminar presentations for each student are stressed. The topic to be studied will be announced each semester. May be repeated. Prerequisite: Any course in PSCI 340 or 540 series or equivalent.

644 Seminar: Political Modernization 3 hrs.

Focusing on the developing areas and using an interdisciplinary approach, the process of political modernization is examined in selected countries or topically on a cross-national basis. The topic to be studied will be announced each semester. Each student will conduct independent research.

III. INTERNATIONAL RELATIONS

Open to Upperclassmen and Graduate Students

552 Studies in International Relations 3-4 hrs.

Examines selected topics within the field of international relations. Topics will vary and will be announced each semester. Course may be repeated.

553 United Nations 3 hrs.

A study of the United Nations in action. Attention is focused on significant political problems confronting world organization, i.e., functional and dysfunctional aspects of the UN Chapter; nationalism vs. internationalism within the UN; conflict resolution and UN peace-keeping efforts; specific UN accomplishments in maintaining a dynamic-international equilibrium; UN weaknesses and the future of world organization.

555 International Law 3 hrs.

The theory, sources, development, and general principles of international law, and the relationship of law to the dynamics of international politics. Decisions of international and municipal tribunals and the practices of states will be used to demonstrate the basic rights and obligations of states in time of peace and war. Such topics as recognition of states, diplomatic practice, treaties and neutrality will also be discussed.

556 Comparative Foreign Policy 3 hrs.

Analysis of foreign policy theories and practices in selected nations. Particular emphasis is given to the interactive process of conflict and competition, cooperation and compromise in the pursuit of national interests.

557 Studies in American Foreign Policy 3-4 hrs.

The course treats American Foreign Policy as a process and emphasizes both policy formation and policy execution through the vehicle of specific case problems, such as: the nature and role of foreign policy, Congress and foreign policy, the role of the military, the United Nations and American foreign policy, and changing American attitudes on the objectives of foreign policy.

Open to Graduate Students Only

650 Seminar: International Relations 3 hrs.

Study and research on a common topic of current international political, organizational, or legal significance. Individual papers and reports will be presented.
651 Seminar: Foreign Policy 3 hrs.

Study and research on a common topic of American or comparative foreign policy significance. Individual papers and reports will be presented.

652 Seminar: Case Studies in Decision Making 3 hrs.

An analysis of specific international disputes. The course will consider how statesmen and diplomats negotiate, why certain instruments are employed in one situation and not another, and what factors are vital in given cases. Efforts will be made to understand the consequences of decisions and their continuing effect on related policy-problems.

IV. POLITICAL THEORY AND METHODOLOGY

Open to Upperclassmen and Graduate Students

560 Comparative Political Ideology 4 hrs.

A consideration of the concept of ideology and significant classical and contemporary ideologies, including their nature, causes and functions in various political systems.

561 Contemporary Political Theory 4 hrs.

An examination of contemporary theories of politics. An attempt will be made to delineate the most important recent developments in the construction of theories of political systems.

562 Modern Democratic Theory 3 hrs.

The course consists of two parts. First, a consideration of traditional democratic theories, and the criticism of these theories emanating from modern elitists such as Mosca, Michels, Pareto and Ostrogorski. Second, an analysis of the attempts of contemporary economists, political scientists, and sociologists to meet these criticisms by revising democratic theory.

563 Theories of Revolution 4 hrs.

Examines significant classical and contemporary theories of revolution with reference to both their analytical and normative implications.

564 Political Inquiry and Analysis 4 hrs.

Analysis of the application of scientific methods to the study of political phenomena; problems of concept formation; law; cause and explanation; theory construction; the place of values in political inquiry.

590 Research Methods 3 hrs.

Study of the formulation of research questions, the design of research, the methods of data collection, and the procedures for analyzing data concerning political institutions and behavior.

591 Statistics for Political Scientists 3 hrs.

An introduction to statistical reasoning with particular reference to research on political institutions and behavior. This course will emphasize bivariate statistics, but will include a brief introduction to multivariate analysis. No mathematical prerequisite is required.
Open to Graduate Students Only

660 Seminar: Political Thought 4 hrs.
An analysis of problems and subject matter considered by political philosophers and significant to the social sciences. Various issues arising in political thought, certain periods in history, or regions of the world may be considered. Subject considered will vary and the course may be repeated.

V. SPECIAL STUDIES

598 Studies in Political Science 1-4 hrs.
An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students. Prerequisite: Approval of Department Chairman or instructor.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Psychology (PSY)

Gault, Chairman; Distinguished University Professor Travers; Distinguished Adjunct Professor Keller; Research Professor Ulrich; Professors Asher, Fatzinger, Fuller, N. Kent, Koronakos, Michael, Mountjoy, Robertson, Schmidt; Associate Professors Farris, Hawkins, Hutchinson, Lyon, Malott, Nangle, Snapper; Assistant Professors Hitzing, Huit-ema, L. Kent, Peine, Sidney.

Open to Upperclassmen and Graduate Students

505 Teaching Psychology in the Secondary School 3 hrs.
Class discussions, laboratory experiences and field work concerned with the teaching of Psychology in high school. This is a required methods course for students who plan to teach Psychology in the secondary school. Prerequisite: PSY 360.

510 Advanced General Psychology 3 hrs.
Readings, lecture, and discussion designed to introduce non-majors in psychology to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes. Recommended as a cognate course in Psychology. Recommended prerequisite: one prior course in psychology.

512 Physiological Psychology 3 hrs.
A survey of the interrelationships of physiological and behavioral processes. Lecture and Lab. Prerequisite: Permission of instructor.
513 Animal Behavior I 3 hrs.
An examination of the topic of animal behavior and research in various behavioral categories. Emphasis will be placed on learning processes examined through ethological and psychological methodologies.

514 Animal Behavior II 3 hrs.
Advanced research in animal behavior. Emphasis will be on data collection and analysis. An individual research project will be required. Both laboratory and field research will be discussed.

516 Conditioning and Learning 3 hrs.
A study of the various approaches to response measurement, experimental methodology and theoretical interpretations of data in the area of conditioning and learning. Lecture and laboratory.

517 Psychology of Learning for Teachers 3 hrs.
Designed to teach the principles of behavior and the application of these principles to teaching. Topic areas covered include the use of behavior principles in the construction of objectives, selection and preparation of instructional material, performance contracting, behavior problems, incentive learning and program evaluation. Practical application is stressed.

518 Sensory and Perceptual Processes 3 hrs.
A survey of sensory and perceptual phenomena with an emphasis on vision and audition. Lecture and laboratory. Prerequisite: Permission of the instructor.

530 Statistics for Education 3 hrs.
An introduction to basic statistical procedures and concepts. Primarily for students in education. Not open to Psychology majors.

535 Instrumentation in Psychology 3 hrs.
A survey of problems in response measurement in experimentation lecture and laboratory.

540 Industrial Psychology 3 hrs.
Application of psychological principles to industry. An examination of employee selection, occupational analysis and classification, training, evaluation or performance, supervision, and working conditions. Prerequisites: PSY 150 and 381.

542 Human Factors in Engineering 3 hrs.
A survey of research on the adaptation of equipment, products and environment to man’s use. Prerequisite: Permission of instructor.

574 Experimental Social Psychology 3 hrs.
Methodology of research with groups, with emphasis upon design and application. Prerequisite: Permission of the instructor.

580 Testing and Measurement in Education 3 hrs.
Educational applications of testing and measurement procedures.
595 History of Psychology
The historical and philosophical foundations of contemporary American psychology.

597 Topical Seminar
A survey in depth and discussion of a research topic of current interest. Prerequisite: Permission of instructor. May be repeated for credit.

598 Special Projects in Psychology
Open to Graduate Students Only

613 Comparative Psychology
Phylogenetic and ontogenetic comparisons of behavior with relation to structure and function. Lecture and laboratory.

614 Motivation and Emotion
An introduction to the experimental analysis of psychological and physiological aspects of motives, incentives, and emotions. Prerequisite: Permission of the instructor.

617 Experimental Psychology of Learning
An intensive study of selected topics with special emphasis upon the techniques employed in the experimental analysis of behavior in the human and infrahuman organisms. Lecture and laboratory.

618 Experimental Psychology of Perception
An examination of the current facts and theories of sensation and perception. Lecture and laboratory.

623 Advanced Abnormal Psychology
Comprehensive study of pathological behavior patterns with consideration of experimental studies and theoretical approaches to causes and empirical treatment techniques.

624 Personality Theory
Consideration and evaluation of the major theories of personality with emphasis on those theories having implications for counseling and therapy. An examination of experimental evidence and illustrative case studies.

634 Advanced Statistics
Small sample theory and analysis of variance as applied to principles of experimental design.

635 Correlation and Regression Analysis
An advanced course covering simple and complex correlation and regression analysis of covariance and experimental time series techniques. Prerequisite: PSY 634 or equivalent.
643 (581) Personnel Selection and Placement 3 hrs.
A critical study of assessment techniques such as testing, weighted application blanks, and interviewing. Included is consideration of administrative procedures and the methods of measuring the functional adequacy of assessment methods.

644 Personnel Training and Development 3 hrs.
The course emphasizes the principles of learning as well as techniques and administrative procedures used in the development of manpower at all levels.

645 Psychology of Work 3 hrs.
Emphasis is placed upon an investigation of worker attitudes, morale, motivation, supervisory styles, and social interaction as determiners of employees productivity and job satisfaction.

660 Introduction to Clinical and Community Psychology 3 hrs.
A survey of the fields of Clinical and Community Psychology with emphasis upon the new roles of Clinical Psychologists and Community Psychologists.

661 Behavior Change 3 hrs.
An examination of the theories and techniques of behavior change applied on an individual basis.

662 Behavior Change 3 hrs.
An examination of the philosophy theories and techniques of behavior change applied on a group basis.

663 Practicum in Behavior Change 3 hrs.
Supervised experience in one or more methods of behavior change. May be repeated for credit up to a maximum of six hours.

680 Psychometric Theory 3 hrs.
An advanced course for research oriented behavioral science students. The main emphasis will be on the principles underlying development and use of all psychological measurement methods. Prerequisite: Permission of the instructor.

681 Personality Measures (Non-projective) 2 hrs.
Studies of the principles of objective personality measurement, such as the MMPI; the findings of studies using these procedures and their applications. Prerequisites: Graduate standing in Industrial, Clinical, School Psychology or Counseling, or permission of instructor.

682 Individual Testing 2 hrs.
Theory and basic concepts underlying the use of individual tests of intelligence. Experience under supervision in administration, scoring and interpretation of the Wechsler Adult Intelligence Scale (WAIS) and the Wechsler Intelligence Scale for Children (WISC) and other diagnostic instruments used in the prescriptive diagnosis of learning disabilities and other handicaps. Prerequisite: Graduate standing in Clinical or School Psychology, or permission of the instructor. Concurrent enrollment in 697 Wechsler lab is recommended.
683 Individual Testing 2 hrs.

Theory and basic concepts underlying the use of individual tests of intelligence. Experience under supervision in administration, scoring and interpretation of the Stanford-Binet Intelligence Scale, Form L-M. and other diagnostic instruments used in the prescriptive diagnosis of learning disabilities and other handicaps. Prerequisite: Graduate standing in Clinical or School Psychology, or permission of the instructor. Concurrent enrollment in 697 Binet lab is recommended.

684 Projective Techniques 3 hrs.

Survey of the theory of projective psychology and the basic concepts of projective measurement. Emphasis is placed on the administration, scoring and interpretation of the Rorschach. The Revised Bender-Gestalt, Porteus Maze, TAT, and figure drawing tests are also considered. Supervised practice. Clinical and School Psychology or permission of instructor.

685 Advanced Projectives 3 hrs.

An intensified study of and supervised practice in Rorschach, Revised Bender-Gestalt, Porteus Maze, figure drawing, and other projective tests. Emphasis on selection and interpretation of projective test battery. PSY 684 or permission of instructor. Clinical and School Psychological Examiner only.

696 Systematic Psychology 3 hrs.

An intensive study of current theories in psychology with emphasis on the philosophy of science and the logic of system building.

697 Advanced Seminar 1-5 hrs.

This course will be an examination in depth of a research or professional topic of current interest.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

720 Specialist Project 2-6 hrs.

Religion (REL)

N. Falk, Chairman; Professors Grundler, Lawson, Loew, Siebert; Associate Professors Bischoff, Earhart, Kaufman; Assistant Professor Ede

Open to Upperclassmen and Graduate Students

500 Historical Studies in Religion 2-4 hrs.

The topic to be announced in the time schedule. The content of the course will vary from semester to semester. Students may repeat the course for credit as long
as the subject matter is different. Topics such as the following will be discussed: Special problems in prehistoric and primitive religions. Japanese, Chinese and Indian Buddhism. The Protestant Reformation. Early and Medieval Christianity. Romantic Spirituality. 20th Century Neo-Orthodoxy. the Evolution of Modern Catholicism. the Occult Tradition.

510 Morphological and Phenomenological Studies in Religion 2-4 hrs.

The topic to be announced in the time schedule. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Divine Forms in West African Religions. Christian Rites and Symbols. Theology as a Religious Form. Sacred Texts. Sacrifice. Initiation.

520 Methodological Studies in Religion 2-4 hrs.

Topics to be announced in the time schedule. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Hermeneutics and Exegesis. Philosophical and Cultural Approaches to Religion. Psychological and Sociological Approaches to Religion. Myth and Symbol in Religion and Literature. Theological Method.

521 The Teaching of Religion in the Public School 2 hrs.

This course focuses on methods and issues involved in the teaching of religion in the public school. Particular attention is given to the problems of its constitutionality, the distinction between the academic study of religion and religious instruction, and the question of meaning. Various approaches to the teaching of religion are critically evaluated. Teaching methods appropriate to the level of instruction, availability, organization, selection and use of materials will be discussed. Required of all students following an Elementary or Secondary Education Curriculum which includes the academic study of religions as a minor.

530 Constructive Studies in Religion 2-4 hrs.

Topic to be announced in the time schedule. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: The Nature and Function of Religion in Contemporary Society. the Possibility of a Post-Christian Theology. a Constructive Theory of Religious Symbolism. the Possibility of a Religious Humanism. Religious Dimensions of Social Evolution.

598 Readings in Religion 1-4 hrs.

Research on some selected period or topic under supervision of a member of the Religion faculty. Approval of instructor involved and Chairman of the Department must be secured in advance of registration.
Science Division (SCI)

Professors Derby, Hannon, Holkeboer, Kruglak, G. Mallinson, VanderBeek; Associate Professors Engemann, Hardie, Kanamueller, J. Mallinson, Passero, Pippen, Straw; Assistant Professors Olsen, Poel

Open to Upperclassmen and Graduate Students

510 Studies in Space Science 3 hrs.

The properties, structure, and evolution of stars will be emphasized in this course. Topics covered will also include: tools and methods of investigation, galaxies, cosmogony, and cosmological theories. Prerequisites: PHYS 106, or 110 and 1111 or equivalent; PHYS 104 or equivalent.

598 Readings in Science 1-4 hrs.

To be used by students seeking work in topics not otherwise available. The student is limited to not more than four hours in all reading courses and work must be completed under a graduate professor.

Open to Graduate Students Only

610 Science for Elementary Teachers 2 hrs.

Indicates the part played by science experiences in the development of children, acquaints teachers with types of science content and teaching procedures suitable in elementary education.

620 The Teaching of Science 2 hrs.

Analyzes and evaluates the objectives of science as a high school subject and considers modern practices with respect to such topics as classroom method, motivation, laboratory work, directed study and like problems.

621 Science Seminar 2 hrs.

The selection and integration of suitable topics from the physical and earth sciences into a coherent program of junior-high-school science. Some lectures will be given on meteorology and astronomy and the development of a cohesive laboratory program will be emphasized.

625 Environmental Science Seminar 2-3 hrs.

Analysis of case studies of environmental problems. Covers the scientific, social, and political problems involved in environmental action. May be repeated for credit up to a maximum of six hours.

690 Science Education Seminar 4 hrs.

Designed to provide an integrating experience for students studying in the Science Education doctoral program. The subject of the seminar will vary from one semester to the next. May be repeated for credit.

NSF Courses – Open to Institute Participants Only

538 Oceanography (NSF) 2 hrs.

Physical oceanography and submarine geology. A study of the physical properties of sea water, boundary processes, ocean currents, water masses and circulation.
in the ocean. Consideration will be given to sedimentary processes, marine sediments and their history, continental shelves, the development of coral reefs, and topography of the ocean floor.

630 Studies in Physical Science (NSF) 2-4 hrs.
Designed for In-Service Programs for Teachers of Science at the elementary level or junior-high-school level. Contents selected mainly for concepts of physics and chemistry needed to teach science more adequately at these levels.

640 Studies in Chemistry I (NSF) 2 hrs.
The study of basic principles of Chemistry including atomic structure, chemical reactions and their quantitative relations, determination of atomic and molecular weights, solutions and their properties, electrolytes, Chemical equilibrium, covalent and ionic bonds, and the use of conversion factors.

641 Studies in Chemistry II (NSF) 2 hrs.
A continuation of Science 640 with further study of basic principles of organic chemistry.

650 Studies in Mathematics I (NSF) 2 hrs.
A study of the algebraic, geometric, and trigonometric concepts needed for the understanding of the physical and chemical concepts presented in junior-high-school science. Topics will include basic principles of arithmetic, functions, systems of equations, inequalities, introductory set theory, and graphical analysis.

660 Studies in Atmospheric Physics (NSF) 2 hrs.
An introductory study to meteorology including chemical and physical properties of the atmosphere, effect of solar radiation of the atmosphere, jet streams, and their relationships to weather and climatic phenomena.

661 Studies in Physics I (NSF) 2 hrs.
Study of basic principles of physics involving the solar system, graphing and interpreting relations, force and motion, mechanical and heat energy, power, electromagnetic energy, light and spectra, subatomic physics, radioactivity and nuclear energy.

662 Studies in Physics II (NSF) 2 hrs.
A continuation of Science 661.

663 Studies in Physics III (NSF) 2 hrs.
A continuation of Science 662.

670 Studies in Geology I (NSF) 2 hrs.
Emphasis on mineralogy and petrology. The geochemical cycle will form the basis for prelating igneous, sedimentary, and metamorphic rocks. Study of physical and chemical properties of minerals will prepare the student for the study of rocks as mineral assemblages which reflect the physiochemical conditions for formation. A brief introduction to optical mineralogy will prepare the student for viewing mineral relationship in thin sections of rocks. Rocks will be studied both in hand specimen and thin section, and problems involving specimens and maps will be undertaken.
671 Studies in Geology II (NSF) 2 hrs.

A continuation of Science 670 with emphasis on paleontology and stratigraphy with the evolution of life illustrated by fossil records. Paleocology will be emphasized as well as the relationship of fossils to stratigraphic sequences. Geologic maps and fossils will be used in problem situations.

681 Recent Developments in Biological Science (NSF) 2 hrs.

Students will be expected to survey extensively current literature in Biology at the popular and semi-technical levels, and to carry on an extensive investigation on the specific topic. Prerequisite: Eight hours of college biology or consent of instructor.

682 Studies in Biology I (NSF) 2 hrs.

A first level course involving advanced study of basic principles of Biology such as change of living through time, diversity of type and unity of pattern of living things, genetic continuity of life, complementarity of organism and environment, and biological basis of behavior.

683 Studies in Biology II (NSF) 2 hrs.

A continuation of Science 682, involving advanced study of basic principles of Biology such as complementarity of structure and function, regulation and homeostasis (the maintenance of life in the face of change), with emphasis on the intellectual history of biological concepts and the nature of science is inquiry.

Social Science Division (SSCI)

Open to Upperclassmen and Graduate Students

500 Data Processing for Behavioral Scientists 3 hrs.

An introduction to data processing for students of the behavioral sciences. Emphasis to be placed upon computer programming in one general purpose computer language and individual projects involving a behavioral problem selected by each student. In addition, there will be a survey of a number of computer techniques which show promise for research in the behavioral sciences. Indeed solely for persons in the behavioral science. No special mathematical background required. Prerequisite: Consent of instructor.

504 Social Studies Seminar 6 hrs.

See Arts and Sciences for information on seminars to England, Yugoslavia, and East Africa.

506 Studies in the Non-Western World 2-3 hrs.

The conduct and content of this seminar, open to both undergraduate and graduate students, varies from semester to semester but is invariably designed to explore some facet of the problems and prospects facing Third World regions or countries.
600 Seminar in the Teaching of Social Studies  2-3 hrs.

Assists teachers of social studies to evaluate their philosophy and teaching methods in the light of accepted principles and current practices in social studies instruction. Students will be encouraged to do individual studies which will enable them to remedy their own weaknesses. Prerequisite: Open only to graduate students who are teaching or have taught social studies in the public schools.

605 Seminar in Area Studies  3 hrs.

This seminar is designed to provide opportunities for Area Studies students to synthesize various social science theories related to national and international development.

606 Colloquium in International and Area Studies  3 hrs.

Papers and reports on topics such as population, urbanization, economic affairs, cultural change, political processes, historical evolution, technology, ideologies and others related to developing areas. Students are expected to share their findings with the members of the Colloquium and to acquire a general view of the topics covered.

NSF Courses—Open to Institute Participants Only

630 Studies in Social Sciences (NSF)  4 hrs.

Designed for in-service programs for teachers of Social Science at the elementary or junior-senior high level. Content selected mainly from concepts of specified social sciences needed to teach at the K-12 level.

Social Work (SWRK)

Hokenstad, Director; Professors Boettcher, Burian, Burns; Associate Professors Barstow, Braithwaite, Coffey, Dadlani, Flynn, Kramer, Miller, Platt, Riehman, Webb; Assistant Professors Adams, Bowler, Kazmerski, Kettner, McCaslin, Phillips, Reid.

Beginning with the Fall Semester 1973, all Social Work courses will be graded on a credit—no credit basis for students in the MSW program. All other students should register for regular credit.

SOCIAL POLICY

Open to Upperclassmen and Graduate Students

572 Community Agency Resources  2 hrs.

A study of community agencies and resources for those concerned with family and personal problems. Emphasis is placed upon the availability of these resources and their effective use by business and industry, speech therapists, guidance counselors, teachers, etc. Prerequisite: Consent of instructor.
Open to Graduate Students Only

Examination of historical and contemporary inter-relationships among individual needs, social system requirements and conditions, institutionalized social welfare forms and social work actions. Examples of selected social problems are used to illustrate the development of social policy in this country as a changing set of responses for dealing with individual distress and social strains, and to evaluate the effectiveness of current social welfare policies and programs. Emphasis is placed upon the key role of social policy in shaping the field of action in social welfare for social work and related professions. Prerequisite: Consent of instructor.

611 Social Policy Analysis and Formulation 2 hrs.
Development of approaches for analyzing, formulating and changing social policies relative to selected issues and problems. National, state and local dimensions of social policy are considered, along with the problems in adaptation of national policy requirements to state and local conditions and of state development policies to local communities. Prerequisite: SWRK 610 or consent of instructor.

612 Social Policy and Service Delivery in Selected Problem Areas 3 hrs.
Intensive study of problem solving frameworks for the solution and management of selected social problems. Attention is focused on the roles of policy analysis and formulation, and service delivery in the problem solving process. Specific topic will be announced each semester. May be repeated for credit. Prerequisite: Consent of instructor.

613 Social Welfare and the Law 2 hrs.
The legal bases of organized social welfare and social work practice are examined through the study of selected examples of social legislation and judicial decisions, the legislative process, development of administrative regulations and court organization. Illustrative case studies are used to demonstrate how social workers can manage within the restrictions and opportunities presented by legal institutions and practices in social action and individual case situations. Prerequisite: SWRK 610 and 611, or consent of instructor.

A comparative analysis of selected characteristics of a group of western and non-western social welfare systems and the differential cultural values and social conditions from which they are derived. Social work practice in the U.S. is contrasted with counterpart activities in other countries. Prerequisite: SWRK 610 and 611, or consent of instructor.

SOCIAL AND BEHAVIORAL THEORY

Open to Upperclassmen and Graduate Students

533 Dynamics of Race and Culture for Social Work Practice 3 hrs.
Racial and group cultural characteristics of social welfare consumer groups and social work clientele are examined. Included in this analysis is an extensive survey of social science and administrative research materials. Implications are drawn for the planning, organizing, administration and provision of programs and services.
College of Arts and Sciences

Particular emphasis is placed on racial and cultural conflict. Prerequisite: Consent of instructor.

Open to Graduate Students Only

630 Social Change Theory and Community Analysis 2 hrs.
The community as a field of action for social change and decision making is analyzed. Several conceptions of social change and stability are reviewed. The processes of community decision making are examined. A social systems framework is used as the conceptual base for analysis in both areas. Prerequisite: Consent of instructor.

631 Family and Individual Functioning and Change 2 hrs.
Theoretical and empirical study of individual and family functioning. Descriptive models for both normal and deviant behavior are considered. Behavior is studied in the contexts of dyadic relationships, small groups, the family, and other institutionalized interaction systems. Implications are drawn for effecting improvements in individual and family situations. Prerequisite: SWRK 630 or consent of instructor.

632 Organizational Theory and Analysis 2 hrs.
Study of the management of social welfare organizations is approached through theoretical and empirical study of organizational structure, process and goals, inter-organizational relationships, organization-community relationships, decision making processes and leadership models. The administrative role in social welfare is developed as a strategic point for social work intervention. Prerequisite: SWRK 630 or consent of instructor.

634 Social Welfare Economics and Politics 2 hrs.
An intensive study of the tension between “rational” planning, political decision making, and the resolution of conflicts between assessments of social welfare needs and programs derived from planning, and the social policies and resource allocations which interest influentials and electorates within the national, state and local political decision making processes. Prerequisite: SWRK 630 or consent of instructor.

636 Individual and Small Group Behavior 2 hrs.
Ego psychology, small group and role theories which are basic to the practice of social treatment are examined. Emphasis will be placed upon utilization of these theories for analytical and diagnostic appraisal, and will include both longitudinal and cross-sectional understanding of individual and group functioning. Prerequisite: SWRK 631 or consent of the instructor.

637 Seminar in Behavioral Theories 2 hrs.
Review and analysis of several theories of personality and behavioral change currently being applied in social treatment practice. Specific theories to be considered are subject to change but may include socio-behaviorism, symbolic interaction, transactional analysis, communication theory, existential therapy, reality therapy and others. Emphasis will be upon developing student ability to understand and evaluate various behavioral theories. Prerequisite: SWRK 631 or consent of instructor.
SOCIAL WELFARE RESEARCH AND TECHNOLOGY

Open to Graduate Students Only


The purposes of this course are threefold: (1) to increase student knowledge of the methods of empirical research as a tool for social work knowledge building; (2) to improve student capacity for research consumption and utilization in social work practice; (3) to develop elementary skills in the machine processing, analysis and presentation of data. Classroom instruction includes lecture and discussion plus laboratory sessions designed to familiarize students with data processing, electronic computer and calculator equipment. Prerequisite: Consent of instructor.

641 Workshop in Action Research 3 hrs.

Laboratory and field study of research processes and methods for testing, evaluating and monitoring on-going, experimental and demonstration social welfare programs, services and operations. Research is developed as a component in the problem solving process for social work practice and is related to other professional actions. Prerequisite: SWRK 640 or evidence of beginning competency in social research.

645 Social Welfare Program Technology 2 hrs.

Study of analytical skills and techniques for planning goal oriented programs and service delivery systems in social welfare. Examples from selected problem areas will be used to illustrate the application of ideas and techniques of modern technology to planning in social welfare. Planning is developed as a central component in the problem solving process for social work practice and is related to other professional actions. Prerequisite: SWRK 661 or consent of the instructor.

648 Supervision, Staff Development and Consultation in Social Welfare Organizations 3 hrs.

Study of ways of maximizing organizational and program-service effectiveness through the utilization of differential patterns of professional supervision, staff leadership, in-service training, staff education and consultation in social welfare organizations. Prerequisite: SWRK 661 or consent of instructor.

SOCIAL WORK PRACTICE

Open to Upperclassmen and Graduate Students

561 Community Development in Selected Countries 3 hrs.

This course is intended to provide basic information needed in understanding community life in developing countries. It places emphasis on the history and philosophy of community development in the context of differential socio-economic systems. It includes understanding of community development as an instrument of social change. It also covers information on program content and analysis of organizational and administrative problems involved in implementing programs. Prerequisite: Consent of instructor.

562 Community Organization in Urban Areas 3 hrs.

Social welfare planning and social action methods are studied as approaches for preventing and resolving aspects of social problems. Emphasis is placed on the
organizing of neighborhood and consumer groups in order to increase social inter-
action and improve social conditions. Prerequisite: Consent of instructor.

563 Social Work Concepts in Rehabilitation 3 hrs.

Application of social work problem solving concepts to social-psychological
problems in the broad field of physical and mental rehabilitation. Both individ-
ualized services and programmatic implications are given consideration. Open to
M.S.W. students and students from related professional departments, with consent
of instructor.

565 Correctional Process and Techniques 3 hrs.

An overview of the correctional process as it can operate in probation, prison
and parole to alter the criminal behavior patterns of legally defined offenders. A
broad perspective is employed based on existing criminological theory and accumu-
lated knowledge of the phenomenon of crime and delinquency. Selected techniques
for correctional behavior modifications are studied in relation to a typology of
normative deviancy in terms of both etiology and rehabilitation. Prerequisite: Con-
sent of instructor.

566 Social Services in Schools 3 hrs.

The role of the Social Worker in elementary and secondary schools and the
necessary adaptations in the changes taking place in the educational scene are
examined and evaluated. Problem solving approaches are given special attention
within the structure and organization of the schools and their relationships with the
surrounding community. The specific contributions of a School Social Worker as a
helping person to the pupils, the school staff and the homes by various interventive
means are explored. Prerequisite: Consent of instructor.

Open to Graduate Students Only

660 The Profession in Contemporary Society 2 hrs.

The profession of social work, its values, traditions, current social action and
service investments, and future opportunities are analyzed within the perspective of
contemporary social conditions and issues. The premise is developed that the
determination of relevancy and saliency for professional practice needs to be func-
tionally related to the significant social problems extant in society at a given time.
Special attention is given to recent events and trends in the human rights “revolu-
tion” and its influence upon the social institutions immediately relevant to social
work practice. Prerequisite: Consent of instructor.

661 Social Welfare Problem Solving 2 hrs.

Theoretical and analytical study of social problems for the identification and
evaluation of differential levels of intervention which can be applied to prevent or
solve problems, or to mitigate or treat their consequences. Consideration will be
given to the individual, family, group, community and larger social dimensions of
problems for the development of “realistic” intervention models which are appro-
priate and feasible in terms of goals and structures which are applicable under
different circumstances. Professional roles and functions relevant for different inter-
vention models will be examined. Prerequisite: Consent of instructor.

662 Social Work Intervention Models 2 hrs.

The social work methods of casework, groupwork, and community organiza-
tion are examined within three major analytic frameworks: (1) their development as separate methods for different problem situations, (2) as a group of three methods based both on unique and generic concepts which can be combined and expanded to form social work approaches applicable to multiple problem situations, and (3) their reformulation into the two major professional concentrations of social treatment, and social action. Prerequisite: SWRK 661 or consent of instructor.

664 Social Work Practice in Special Areas 3 hrs.

Study of problem solving in specialized areas of social work practice. Focus upon the role of the social work practitioner in assessment, goal establishment and intervention in the use of various social work methods in different arenas of practice. Specific topic will be announced each semester. May be repeated for credit up to a maximum of six hrs. Prerequisite: Consent of instructor.

666 Seminar in Social Treatment 3 hrs.

Study of the structure and dynamics of social treatment actions and programs, and the application of behavioral change and environmental modification theory. Emphasis is upon differential formulations of problems for consideration of the applicability of various treatment interventions. Treatment concepts are studied which are judged appropriate for: 1) a range of case situations involving social workers in interaction with specific individuals and groups to achieve changes in individual behavior and adaptation, and in specific interpersonal and group relationships, and 2) the case situations involving problems and disconnections between specific individuals and groups, and community institutions. Prerequisite: SWRK 662 or consent of instructor.

667 Seminar in Social Planning and Administration 3 hrs.

First part of a two semester seminar dealing with problems in social welfare planning and administration. Emphasis in the first semester is upon planning for improving social welfare conditions through program changes and alterations in institutional arrangements. Organizational and interorganizational planning fields are given attention. Prerequisite: SWRK 662 or consent of instructor.

668 Advanced Seminar in Social Treatment 3 hrs.

This course is a continuation of Social Work 666. Emphasis is placed on differential utilization of a variety of group and individual treatment approaches to a range of person-problem situations within the framework of different social work tasks, roles and organizational contexts. Prerequisite: SWRK 666.

669 Advanced Seminar in Social Planning and Administration 3 hrs.

Second part of a two semester seminar dealing with problems in social welfare planning and administration. Analysis of intraorganizational and interorganizational management issues. Emphasis is placed upon the development of innovative strategies for the structuring and management of social welfare delivery systems. Prerequisite: SWRK 667.
FIELD EDUCATION

Open to Graduate Students Only

671 Field Education in Social Welfare Problem Solving 4 hrs.

The first six weeks, the students will engage in special tasks and projects focused on contemporary social problems. Intensive attention will be given to the social welfare system with emphasis on examination of alternative means of intervention of the problem solving approach. Content will be integrated through seminar and classroom discussion. Placement in a field unit within a complex providing opportunities for generic tasks will begin the seventh week. Campus or field based seminars weekly for six weeks; bi-weekly thereafter. Prerequisite: Consent of instructor.

672 Field Education In Social Work Intervention 4 hrs.

Continuation of placement in field unit within a complex providing generic tasks with emphasis on scientific method and consideration of alternatives in problem solving means. Campus or field based seminars. Prerequisite: SWRK 671.

676 Field Education in Social Treatment 4 hrs.

Placement will be in an agency unit through which experiences in social treatment (casework and group work) are offered. Major emphasis will be on development of skill in direct social work practice with clients. For students demonstrating readiness and who anticipate assumption of supervisory tasks immediately following graduation the placement plan and experiences will afford primary emphasis in skill development and in the range of supervisory role tasks and responsibilities. Campus or field based seminars will supplement the field experience. Prerequisite: SWRK 672 or consent of the instructor.

677 Field Education in Social Planning and Administration 4 hrs.

Students are provided with direct experience in dealing with problems of community planning for human welfare, and in the administration of service delivery systems. Specialized field placements in social welfare organizations or special programs are arranged in accordance with student interests and abilities. Prerequisite: SWRK 672 or consent of the instructor.

678 Advanced Field Education in Social Treatment 4 hrs.

Continuation of 676. Students will remain in field placement. Direct social treatment (or supervisory) practice will continue. Added emphasis will be directed to skill development requisite to disciplined performance at the beginning level of competence for social work practice in direct treatment (or supervisory) roles. Attention will be given to the concept of self-responsibility for professional development. Experiences will be offered which provide practice in leadership roles. Campus or field based seminars will supplement the field experience. Prerequisite: SWRK 676.

679 Advanced Field Education in Social Planning and Administration 4 hrs.

Continuation of Social Work 677. Further emphasis in professional role development for planning and administrative practice. Skill learning assignments will include supervised work in such areas as planning approaches, program development, budgeting, information systems, personnel, management and the organization of groups for involvement in problem solving activities. Prerequisite: SWRK 677.

200
SPECIAL SEMINARS AND PROJECTS

Open to Upperclassmen and Graduate Students

Individual study in social welfare and social work topics which are not covered in the University's graduate course offerings. Prerequisite: Consent of major advisor and proposed instructor.

Open to Graduate Students Only

681 Graduate Seminar I No credit
The first of four coordinating seminars for academic and field planning, integration and evaluation.

682 Graduate Seminar II No credit
The second of four coordinating seminars for academic and field planning, integration and evaluation. Preparation of plan for professional concentration studies in second year program.

683 Graduate Seminar III No credit
The third of four coordinating seminars for academic and field planning, integration and evaluation.

684 Graduate Seminar IV No credit
The last of four coordinating seminars for academic and field planning, integration and evaluation.

686 Field Studies in Research and Practice 8 hrs.
Special group projects and research which are planned, organized and carried out by faculty and students during the spring session. The nature of specific projects will vary each year, but may include experiences in area communities, other national regions and in foreign countries. The field studies are designed to integrate learning which has taken place during the prior two semesters, provide students with diverse cultural and educational experiences and further the development of research and practice competency. Prerequisite: Consent of instructor. Graded on credit-no credit basis.

Open to Graduate Students Only—Please refer to The Graduate College section for course description

710 Independent Research 2-6 hrs.
Sociology (SOC)

Chaplin, Chairman; Professors Bouma, Brawer, Cothran, Erickson, Eshleman, Horton, Hunt, Lewis, Manis, S. Robin, Schellenberg, Walker; Associate Professors Bennett, Braithwaite, Marrett, Ross, Smith, Wagenfeld; Assistant Professors Bradfield, Friday, Green, Keely, Landis, MacDonald, Markle, E. Robin, Sonnad, Wait, Walizer, Wienir.

Open to Upperclassmen and Graduate Students

500 History of Social Thought
A critical survey of the social thinking of outstanding students of society from Plato to modern social scientists. Prerequisite: nine hours of sociology.

510 Studies in Social Problems: Variable Topics
An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 and 210, or consent of instructor.

512 Seminar in Criminological Theory
A critical analysis and evaluation of the leading theories concerning the causes of crime, the nature of criminal personality, and the treatment of convicted offenders. Prerequisite: SOC 312 or 514, or consent of instructor.

514 Juvenile Delinquency and the Community
A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment, and programs of prevention and control are covered. When feasible, community resource people are invited to participate. Prerequisite: SOC 200 or 600, or equivalent.

515 Social Conflict
An examination of causes of social conflict, strategies in pursuing conflict, and forms of conflict resolution in conflicts between individuals, between groups, and between nations. Prerequisite: fifteen hours of sociology, political science, and/or economics.

520 Studies in Social Psychology: Variable Topics
Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: SOC 320.

523 Contemporary Social Movements
A study of origins, growth, and place in contemporary society of selected social movements, including communism, fascism, Ku Klux Klan, the Townsend movement, and the like. Prerequisite: SOC 200 or 600, or equivalent.

525 Social Psychology of Education
An intensive examination of the roles and the interaction of students, teachers, and administrators in the school setting. Particular attention will be given to the importance of peers, family, and social structure. Prerequisite: SOC 320 or equivalent.
530 (558) Social Forces in Underdeveloped Areas 3 hrs.
An examination of the social factors which influence the growth of industrialization in underdeveloped areas. These factors include cultural tradition, social stratification, and the problems involved in a shift from rural to urban residency. Prerequisite: SOC 200 or 600, or ANTH 220, or consent of instructor.

Analysis of social change in specific geographic or national areas designated in the course title as scheduled. Change is examined through perspectives from history, anthropology, and sociology. Currently, courses are being offered on Japan and Latin America. May be repeated for credit with a different area. Prerequisite: SOC 200 or 600.

532 Introduction to Comparative Sociology 3 hrs.
An introduction to the history, major theoretical perspectives, and methodological issues associated with cross-national and cross-cultural studies. Particular emphasis will be placed upon those studies which have been central to the development of the comparative approach in sociology. Prerequisite: nine hours of sociology or consent of instructor.

533 (577) Comparative Institutional Studies 3 hrs.
A comparative study of the structure and functioning of selected aspects of culture in America and other selected countries. The legal structure, family and educational systems, the welfare structure, stratification, economic institutions, political organization, the role of science, and the basic character of social change. Prerequisite: SOC 200 or 600, or equivalent.

534 (559) Studies in Ethnic Relations: Designated Areas 3 hrs.
An investigation of the structure and dynamics of tribal, ethnic, and race relations in the context of current theories of racial and ethnic relations. The course will focus on one or another major geographic or cultural area (Africa, Southeast Asia, etc.) and will compare case studies drawn from different countries within this area. May be repeated for credit with a different area. Prerequisite: SOC 200 or 600, or consent of instructor.

A study of the erosion of traditional tribal systems and the rise of secondary associations and social systems resulting from the impact of European culture and other contemporary world influences. Prerequisite: SOC 200 or 600, or ANTH 220, or consent of instructor.

539 Anthropology of Education 3 hrs.
This course is cross-listed and may be taken for either sociology or anthropology credit. See Anthropology 549 for course description.

552 Sociology of Aging 3 hrs.
An examination of the process of aging in American Society, with particular emphasis on the periods of late maturity and old age. Consideration will be given to theories of aging and the social implications of age grading, the meaning of work and retirement, and the status and roles of the aged. Prerequisite: six hours of sociology, including SOC 200 or 600.
College of Arts and Sciences

554 Sociological Analysis of Population 3 hrs.
Applications of selected sociological theories to the analysis and interpretation of population characteristics and processes, such as size, growth, social structure, and social change. Prerequisite: six hours of sociology or consent of instructor.

556 Social Stratification 3 hrs.
An analysis of the nature, causes, and consequences of class and status differences within societies. Stress is placed upon such concepts as mobility, class, status, and differential power. Conflict and functional theories of stratification are treated. Prerequisite: SOC 200 or 600, or consent of instructor.

572 Power and Society 3 hrs.
An analysis of the bases, distribution, and uses of power in societies and in local communities. Marxist, elitist, and pluralist theories will be considered along with empirical studies of power. A major goal will be understanding the use of power by various groups in facilitating or controlling social change. Prerequisite: SOC 200 or 600, or equivalent.

573 The Sociology of Political Behavior 3 hrs.
Systematic sociological theory and research applied to the study of political organization and behavior in the United States and in selected countries abroad. Such topics as political parties, voting, bureaucracy, and political ideology will be considered. Prerequisite: nine hours of sociology and/or political science.

574 Sociology of Religious Institutions 3 hrs.
A study of the social role of religious institutions and beliefs with particular reference to the United States. The course considers social factors affecting development of different types of religious institutions and the influence of religion on American society. Prerequisite: SOC 200 or 600, or equivalent.

575 Industrial Sociology 3 hrs.
The sociological study of industrial organizations and of the process of industrialization. The impact of technology and related factors on work organizations, the structure and operation of labor unions, and the changes occurring in industrial society are discussed. Prerequisite: SOC 200 or 600, or equivalent.

576 Advanced Sociology of Education 3 hrs.
Advanced studies in sociology of education, emphasizing important theoretical and methodological issues, including in-depth examination of such substantive areas as: socialization, teacher-pupil interaction, teacher role, the school as a social institution, and the structure of the school system as it is affected by the community and the society at large. Prerequisite: twelve hours of sociology or consent of instructor.

578 Sociology of Law 3 hrs.
An examination of legal organization, the legal profession, and legal norms in the United States and other western societies. Emphasis will be placed upon the relationship between the legal system and the society in which it functions. Prerequisite: SOC 200 or 600, or equivalent.
580 Sociological Statistics I 3 hrs.

An introduction to statistical reasoning with particular reference to social science research. The course will view statistics as an aspect of scientific inquiry and consider problems of analysis and interpretation of typical social science data. While no mathematics prerequisite is required, a course in college algebra will be helpful.

582 Research Methodology 3 hrs.

An introduction to the basic methods of empirical research in sociology. Theory and techniques of research design, formulating and testing hypotheses, sampling, and the collection, analysis, and interpretation of data are studied. Prerequisite: nine hours of sociology.

590 The Family as a Social Institution 3 hrs.

The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family system. Emphasis is placed on change and comparative analysis. Prerequisite: SOC 200 or 600, or equivalent.

592 Family Life Education and Counseling 2 hrs.

Provides the student with a working knowledge of the methods and materials appropriate in the school, the church, and other social situations, for working with individuals and small groups who desire preparation for marriage and parenthood. Some attention will be given to the techniques for handling counseling opportunities arising out of these teaching situations. Prerequisite: SOC 200 or 600, or consent of instructor.

598 Directed Individual Study 2-6 hrs.

A program of independent study (reading or research) to provide the unusually qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The initiative for planning the topic for investigation must come from the student. Approval is contingent upon the merit of the proposal. Maximum of four hours may be applied toward master’s degree. Enrollment beyond the first semester may be either for the same topic or for a new topic. Prerequisite: consent of instructor and the department chairman.

Open to Graduate Students Only

600 Social Dynamics of Human Behavior 2 hrs.

An introductory course in sociology for graduate students. This course is not open to those who have had a foundation course in sociology. The concepts of sociology, cultural anthropology, and social psychology essential to understanding human development and social behavior are systematically explored and integrated.

601 Advanced General Sociology 3 hrs.

A comprehensive survey of trends in the major fields of sociology. Prerequisite: Open only to graduate students in sociology.

604 Seminar in Sociological Theory 2 hrs.

An advanced, intensive study of certain selected theoretical topics of contem-
Advanced study and exploration following seminar format, of topics of interest to faculty and students, for example; various role theory formulations and their usefulness in understanding social behavior. Ethnomethodology, philosophy of science, experimental design, Marx, Weber, or other selected theorists. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

610 Sociology of Deviance 2 hrs.
The course deals with theoretical and methodological issues in the sociological and social psychological study of deviance. The social basis of definitions, causation, and treatment of deviant behavior will be examined. Substantive topics, such as alcoholism, homosexuality, and drug addiction will be discussed. Prerequisite: six hours of sociology.

612 Seminar in Corrections and Penology 3 hrs.
Study of correctional institutions, probation, parole, and other means of dealing with criminal behavior. Prerequisite: SOC 200 or 600, 312, and consent of instructor.

614 Seminar in Race Relations 3 hrs.
Advanced study of race relations problems and trends. Prerequisite: SOC 314 and consent of instructor.

615 Patterns of Intercultural Adjustment 3 hrs.
A study of processes of intercultural adjustment involving different racial, national, and religious groups. The factors giving rise to present-day conflict situations are examined and special emphasis is given to techniques of adjustment through individual and community action. Prerequisite: SOC 200 or 600, or equivalent.

A detailed study of a social problem area through student reports and seminar discussion. Instructor will select specific topic. Course is intended to provide intensive joint exploration of significant sociological issues. May be repeated for credit with a different topic. Prerequisite: fifteen hours of sociology and consent of instructor.

622 Publics and Propaganda 3 hrs.
A systematic analysis of the nature, composition, and etiology of publics and related phenomena such as masses and interest groups, and exploration of propaganda techniques and research. Prerequisite: fifteen hours of sociology and consent of instructor.

625 Advanced Social Psychology I 3 hrs.
A study of major theoretical approaches in social psychology and their methodological and substantive implications. Prerequisite: SOC 320 or equivalent.

626 Advanced Social Psychology II 3 hrs.
Advanced exploration of contemporary social psychology, with selected exam-
Sociology

Examples of theory and research to represent current work in socialization, small groups, and cognitive social psychology. Prerequisite: SOC 625.

628 Seminar in Social Psychology: Variable Topics 3 hrs.
An advanced seminar in some specialized aspect of social psychology. May be repeated for credit with a different topic. Prerequisite: SOC 625.

632 Studies in Comparative Sociology: Variable Topics 3 hrs.
Intensive analysis of selected topics using a comparative frame of reference. The seminar will focus on such topics as major theoretical perspectives, methodological issues, and interpretation of studies of such institutions as: criminal and penal systems, educational systems, industrial systems, and family systems. May be repeated for credit with a different topic. Prerequisite: SOC 532 or equivalent, and consent of instructor.

673 Formal Organization 3 hrs.
This course analyzes the nature of large-scale, formal organizations, concentrating on their structure, types of organizational goals, processes of control, authority and leadership, and the relationship of organizations to their social environment. Examples of organizations will be selected from different areas such as education, government, medicine, science, leisure, and industry. Prerequisite: nine hours of sociology.

674 Seminar in Political Sociology 3 hrs.
Intensive analysis of selected areas of political behavior in the United States and abroad, within the framework of systematic sociological theory and research. Different topics will be considered each semester the course is offered. Topics will include: political socialization, political roles and organization, decision-making in the political process, political movements, political communication, and alienation and political behavior. Students may repeat the course for additional credit. Prerequisite: SOC 573 and consent of instructor.

676 The School and the Community 2 hrs.
Analysis of the school as a social institution in the American community, including consideration of interaction between the school and other basic social institutions, and the sociological significance of community structures, processes and problems for school-community relationships. Prerequisite: SOC 200 or 600, or equivalent.

Deals with selected sociological aspects of education, such as sociological theory and education, social class and education, social control and education, socialization in the school system, and sociological problems in the education of exceptional children. May be repeated for credit with a different topic. Prerequisite: SOC 576 or equivalent, and consent of instructor.

680 Studies in Research Methodology: Variable Topics 2 hrs.
A seminar on advanced theoretical and methodological problems which are important to systematic research in sociology. Suggested specialized topics include: philosophy of the social sciences, relationship between theory and research, and model building and testing. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.
681 Data Collection Techniques 2 hrs.
Sources and procedures for data collection in sociological research including such topics as: instrument construction, interviewing, observation, content analysis, and the use of documents, records, census data, and other published materials of interest to sociologists. Prerequisite: SOC 582 or equivalent.

682 Design and Analysis of Social Research 2 hrs.
A study of research designs and associated techniques of analysis, including principles of measurement, scaling, and systems and change analysis. Prerequisite: SOC 582 or equivalent.

683 Supervised Research 2 hrs.
Purpose is to assist student in selecting, formulating, designing, conducting, and reporting the thesis or essay. Includes continuing reports by students of their research progress. Those who plan to do a thesis may, with permission of the instructor and the graduate adviser, continue with SOC 700, Master's Thesis. (Not offered in 1973-74.

684 Sociological Statistics II 3 hrs.
A second course in statistical techniques of special importance to sociology. The emphasis is on procedures for analyzing problems involving a large number of variables. Topics studied include multiple and partial correlations and regression, analysis of variance, and factor analysis. Prerequisite: SOC 580 or equivalent.

The study of advanced statistical techniques which are important to systematic research in sociology. Suggested specialized topics include: factor analysis, advanced nonparametric techniques, path coefficient analysis, and regression analysis. May be repeated for credit with a different topic. Prerequisite: SOC 684 or equivalent.

688 Research Internship Seminar 3 hrs.
The internship combines field research experience with seminar procedures in research design, data collection, and analysis. May be repeated for a total of nine hours credit. Prerequisite: Open only to graduate students in sociology, with consent of instructor.

689 Seminar in Research Methods in Sociology of Education 3 hrs.
A study of techniques of research particularly appropriate to research in the sociology of education, not normally included in more general methods courses. Topics will include research designs and instruments for investigating consequences of categorization of students as retarded, deaf, blind, etc., and special procedures for the investigation of learning and social interaction of exceptional students. Special attention will be given to the design and analysis of longitudinal investigation and cohort analysis within the educational system. Prerequisite: SOC 582 and 684.

690 Seminar in Marriage and the Family 3 hrs.
Advanced study of the interactional or institutional aspects of marriage and the family. Emphasis upon any one or two of the following areas during the semester: the social psychology of the family, the family and social structure, comparative
family systems, current family research, family problems, social change and the
family, or pertinent issues within the sociology of the family. Can be repeated
without duplication of material. Class size limited to fifteen students. Prerequisite:
One course in the family and consent of instructor.

692 Family Analysis 2 hrs.
An introduction to major theoretical frameworks by which family behavior can
be studied and analyzed. It is intended to familiarize students with selected ap-
proaches to understanding and studying family behavior and organization, and to
introduce research based upon these major frameworks. Prerequisite: SOC 200 or
600, or equivalent.

695 (630) College Teaching Practicum in Sociology 3 hrs.
A practicum in the teaching of sociology in college. Students will attend
assigned lectures and seminars, prepare a syllabus for a course in sociology, and
deliver at least two supervised lectures to a sociology class. Prerequisite: fifteen
hours of graduate sociology courses and consent of instructor.

696 (631) Supervised College Teaching in Sociology 1 hr.
Teaching of a section of a sociology course under supervision. Prerequisite:
SOC 695 and approval by department chairman.

Open to Graduate Students Only—Please refer to The Graduate College section for
course descriptions

700 Master's Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.
725 Doctoral Research Seminar 2-6 hrs.
730 Doctoral Dissertation 15 hrs.
735 Graduate Research 2-10 hrs.

Speech Pathology and Audiology (SPPA)
Robinson, Head; Distinguished University Professor Van Riper; Professors Bate, Erickson,
Stromsta; Associate Professors Lohr, Willis; Assistant Professors Clark, Jetty

Open to Upperclassmen and Graduate Students

550 Advanced Speech and Hearing Science 2 hrs.
Theories of speech production, reception and perception are considered in this
course from the point of view of experimental phonetics and experimental audiolo-
gy.

551 Neuropathologies of Speech 2 hrs.
This course is concerned primarily with surveying selected communication
disorders associated with neuropathologies. Prerequisites: SPPA 200, 202, 203.
554 *Speech and Hearing Therapy in the Schools* 2 hrs.
Study of the problems related to the clinical work in speech and hearing therapy in the school setting. Prerequisites: SPPA 351, 353, 354, 355.

555 *Speech and Language Development of the Hearing Impaired* 3 hrs.
A detailed study of the problems of speech and language acquisition in the deaf and hard of hearing child; orientation to clinical management prerequisite: SPPA 357.

556 *Aural Rehabilitation* 2 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment. Prerequisites: SPPA 355, 357.

557 *Psychosociological Aspects of Hearing Impairment* 3 hrs.
This course is designed to acquaint the student with the educational, psychological, sociological and vocational problems and needs of the deaf and hard of hearing. Prerequisite: SPPA 357.

595 *Oral Language Development and Dysfunction* 2 hrs.
Provides the student preparing to be a classroom or special teacher with information about the nature of oral language, its development, conditions associated with dysfunction and the principles and methods of treatment for children with specific speech or language disorders. Not open to students who have had Speech Pathology and Audiology 200 or its equivalent.

598 *Readings in Speech Pathology and Audiology* 1-4 hrs.
Arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of interest in depth.

**Open to Graduate Students Only**

600 *Graduate Study in Speech and Hearing* 2 hrs.
This course is designed to acquaint the entering graduate student with advanced study in speech pathology and audiology. Research in normal and disordered communication is studied with reference to the scientific method, principles of measurement, instrumentation, and experimental techniques. The course requires that either a laboratory or a clinical research proposal be formulated by each student. Required of all students of Speech Pathology and Audiology.

610 *Diagnostic Procedures in Audiology* 4 hrs.
An advanced course dealing with those batteries of audiological techniques used for assessing rehabilitative needs and for otologic diagnoses.

611 *Hearing Aids* 2 hrs.
Components, characteristics, evaluation, selection, use and maintenance of hearing aids are studied in detail.

612 *Pediatric Audiology* 3 hrs.
This course deals with the identification, measurement, and management of hearing impairment in infants and young children.
613 Rehabilitative Procedures in Audiology 3 hrs.
Specific procedures and techniques for the rehabilitation of individuals with impaired hearing are systematically and critically analyzed.

650 Seminar in Speech Pathology 2-4 hrs.
Selected topics in speech pathology are systematically explored through critical analyses of literature and through individual study projects. Voice disorders, articulation disorders, language disorders, cleft palate, and stuttering are among the possible areas of study. Topics vary from semester to semester and are announced in advance. May be repeated.

651 Seminar in Speech and Hearing Science 2-4 hrs.
Selected topics in speech and hearing science are systematically explored through critical analyses of literature and through individual study projects. Instrumentation, procedures and techniques employed in perceptual, physical and physiological analyses of normal speech and hearing are among the areas considered. Topics vary from semester to semester and are announced in advance. May be repeated.

652 Seminar in Audiology 2-4 hrs.
Selected topics in audiology are systematically explored through critical analyses of literature and through individual study projects. Pediatric audiology, geriatric audiology, hearing aids, residual hearing, and aural rehabilitation are among the possible areas of study. Topics vary from semester to semester and are announced in advance. May be repeated.

653 Diagnosis and Appraisal 3 hrs.
This course is intended to provide basic information needed in the examination of persons with communication disorders. Interviewing techniques, examination procedures, standardized testing, and clinical assessment techniques are the basic content of the course.

654 Diagnostic Procedures in Speech Pathology 3 hrs.
In this course the student is introduced to instruments and techniques designed specifically for the appraisal and diagnosis of communication disorders and gains experience in their application. Approximately two hours per week of participation in out-patient diagnostic examinations is required.

657 Disordered Language Development 3 hrs.
Procedures and techniques for identification, diagnosis and clinical management of developmental disorders of language are explored intensively in this course.

658 Theoretical Bases for Therapy 3 hrs.
In this course disorders of communication are examined in terms of servosystem theory, learning theory, and personality theory.

659 Principles of Professional Practice 2 hrs.
Currently identifiable professional and philosophical questions are defined and studied with reference to the history of the development of the profession of speech pathology and audiology.
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<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>660</td>
<td>Voice Disorders</td>
<td>2 hrs.</td>
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<tr>
<td></td>
<td>Organic and functional disorders of laryngeal and resonator origin are studied in depth.</td>
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<tr>
<td>661</td>
<td>Articulation Disorders</td>
<td>2 hrs.</td>
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<td></td>
<td>This course considers in detail the nature and treatment of functional misarticulations and of misarticulations associated with cleft palate.</td>
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<tr>
<td>662</td>
<td>Stuttering</td>
<td>3 hrs.</td>
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<td></td>
<td>Theories and therapies applicable to the understanding and clinical management of stuttering are studied in depth.</td>
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<tr>
<td>663</td>
<td>Aphasia in Adults</td>
<td>3 hrs.</td>
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<td></td>
<td>This course deals comprehensively with the identification and treatment of communication problems in the adult aphasic individual.</td>
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Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

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College of Business

ARNOLD E. SCHNEIDER, Dean

DARRELL G. JONES
Associate Dean

Graduate Offerings:
Accountancy
Business Education and Administrative Services
General Business — Finance — Law
Management
Marketing
College of Business

The College of Business includes the departments of Accountancy, Business Education and Administrative Services, General Business, Management and Marketing. The function of the College of Business is to prepare students for positions in business, industry and government. A program leading to the degree of Master of Business Administration is designed to prepare graduate students to function effectively in administrative positions. This preparation emphasizes the development of the student's ability to make and execute decisions. The program of study is designed to provide the student with skills and knowledges in the areas of critical analysis, business operations, changing environments, professional development and specialized professional interests. In addition, the degrees of Master of Science in Accountancy and other Business areas and Specialist in Business Education are offered. The College of Business also cooperates with the College of Education in offering the Teaching of Business Education curriculum.

The student is challenged to develop the judgment, discriminating capacity, knowledge and understanding which will permit him to work efficiently in administrative and other leadership roles. Under the guidance of the graduate staff of the College of Business, personal programming for the participant is provided as an alternative to a set schedule of required courses.

Accountancy (ACTY)

Burke, Head; Professors Everett, Neubig, Welke, Wetnight; Associate Professors Daniels, Mitchell, Newell, Sheppard; Assistant Professors Morris, Schaeberle, Zelechowski

Open to Upperclassmen and Graduate Students

516 Auditing 3 hrs.

The theory and practice of making audits of business enterprises and government agencies.

518 Accounting Theory and Problems 3 hrs.

Theoretical consideration of accounting problems. The analysis of the type of problems that are found in C.P.A. examinations or encountered by business management is included. Prerequisite: Undergraduate major in Accountancy or consent of instructor.

521 Studies in International Accounting 3 hrs.

A study of the differences in the Principles of Accounting Auditing Standards and Auditing Procedures in selected countries of the world. Emphasis is placed on those countries which are important in world commerce. Prerequisite: Consent of instructor.

522 Cost Accounting — Theory and Practice 3 hrs.

The development and application of cost accounting principles to industrial situations. The course includes the application of costs to operations and to products. The preparation and analysis of detailed cost information, as well as methods and procedures for solving complex cost problems encountered in industry, are included as a major part of the course. Prerequisite: ACTY 322.
524 Studies in Tax Accounting 3 hrs.
Special studies related to tax problems of individuals, partnerships and corporations. Emphasis on corporation taxes, thrusts and estate tax problems. Gift and estate taxes and an introduction to tax planning are included. Prerequisite: ACTY 324 or written consent of instructor.

598 Readings in Accounting 1-4 hrs.
Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

Open to Graduate Students Only

505 Administration Accounting 3 hrs.
Basic topics are the accumulation of financial data and the preparation of financial statements. Included are accounting topics related to business assets and entities and an introduction to the analysis and interpretation of financial statements. This is a program prerequisite course for MBA and MS students in the College of Business (therefore graduate credit is not earned). Closed to students with credit for ACTY 210, 211 or equivalent. May be taken on a credit-no credit basis.

601 Research Methods in Accounting 3 hrs.
This course is designed to familiarize the student with the methods and procedures for planning, conducting, and reporting individual research projects in accounting.

606 Advanced Financial Accounting 3 hrs.
An intensive study of asset valuation, liabilities, corporate capital, and their relationship to income. Prerequisites: ACTY 211 or 505.

607 Accounting Control and Analysis 3 hrs.
A study of financial systems and techniques used for profit planning and control of a business firm. Budgetary concepts and variance analysis are developed for cost centers, responsibility centers, and profit centers. Organizational relationships and implications are examined in the development of operational controls, management controls, and strategic planning. This course is a study of managerial accounting and is in the graduate business core. Prerequisite: ACTY 505 or equivalent.

608 Advanced Accounting Theory 3 hrs.
A study of the underlying concepts and principles of corporate accounting. Prerequisite: ACTY 606 or equivalent.

610 Seminar in Accounting 3 hrs.
Intensive examination and study of the underlying postulates, concepts, and principles of accounting. Income determination, asset valuation, and equities are emphasized in succeeding seminars. Course may be repeated under different topics. Prerequisite: Consent of instructor.

617 Seminars in Controls 3 hrs.
The function of controls in the organization. The controller’s relationship to the construction, control, and interpretation of accounts for the internal and external
administration of the organization is emphasized. Prerequisites: Will vary with topic.

622 Advanced Cost Accounting Concepts 3 hrs.
A study of the more mature methods of cost measurement and control. Includes standard cost, budgetary control, profit-volume analysis, direct cost and return on employed capital. Prerequisite: ACTY 322 or written consent.

624 Business Tax Planning 3 hrs.
An advanced course in business taxation involving the identification and analysis of tax problems. Income tax strategy is studied involving the timing of income, types of business organizations, and the various alternative tax treatments. Tax problems of corporate reorganizations, liquidations, estates and trusts, partnerships, and capital gains will also be included. Case studies will be used and research in taxation will be emphasized. Prerequisite: ACTY 324 or written consent.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.

Business Education and Administrative Services (B ED)
Moskovis, Head; Professors Bournazos, Jones, Marietta, Niemi; Associate Professors McBeth, McKitrick; Assistant Professors Beelick, Branchaw, DeYoung, Halvas, Hatch

Open to Upperclassmen and Graduate Students

554 Topics in Business Communications 3 hrs.
An intensive study of a topic in Business Communication such as report writing, communication effectiveness, media in business, business and educational publicity, and others. The topic will be announced in advance. May be repeated for credit.

556 Office Management 3 hrs.
Areas of office services from the managerial viewpoint. An overview of the problems of organizing, constructing, installing and maintaining office systems and supervising and training office personnel.

583 Coordination Techniques in Office Education 2 hrs.
A study of the role and responsibilities of the office education coordinator in his educational system. Surveys the organization of the office education program, the course content of the related class, supervision of on-the-job trainees, the establishment of working relationships among the school, business and home; examines pertinent research.
584 Improvement of Instruction in Shorthand and Secretarial Subjects 2 hrs.
A study of research findings, teaching materials and procedures, methods of evaluation, and future instructional requirements in shorthand and secretarial subjects.

586 Improvement of Instruction in Typewriting 2 hrs.
A study of research findings, teaching materials and procedures, methods of evaluation and future instructional requirements in typewriting.

588 Improvements of Instruction in Bookkeeping, Basic Business Subjects 2 hrs.
A study of research findings, teaching materials and procedures, methods of evaluation, and future instructional requirements in bookkeeping and basic business.

589 Organization and Teaching of Office Practice 2 hrs.
A consideration of aims and content of office-practice course with plans and techniques for organizing and teaching the subject matter of the course and its laboratory material.

596 Independent Study 1-4 hrs.
A directed independent project in an area of business education or administrative services. Consent of department head.

598 Readings in Business Education and Administrative Services 1-4 hrs.
A series of direct readings in the area of business education or administrative services. Prerequisite: Consent of department head.

Open to Graduate Students Only

600 Seminar in Business Education and Administrative Services 3-4 hrs.
Intensive problem solving in areas of business education or administrative services. May be repeated for credit.

680 Principles of Business Education 3 hrs.

682 Guidance in Business Vocations 2 hrs.
The challenges of career education in a changing society. Problems and responsibilities of business education departments in familiarizing students with careers and making career choices. Emphasis is given to student-teacher counseling.

683 Supervision and Administration of Business Education 2 hrs.
Principles and problems involved in the administration and supervision of business education programs. Emphasis is placed on the work of the department head and city and state business education supervisors.

684 Comparative Shorthand Theory 3 hrs.
Analysis of the similarities and differences in psychological approaches, theory, memory load and methodology employed by various modern shorthand systems.
520 Security Analysis 3 hrs.
A sophisticated analysis of investment securities from the viewpoint of establishing meaningful valuation techniques. The course is designed for students anticipating careers in investment management in industrial firms and/or financial institutions. Prerequisite: Finance 326.

521 International Finance 3 hrs.
A study of contemporary problems in international finance. The course examines the international money markets, working capital considerations and capital budgeting problems as faced by the multinational corporation. Prerequisite: Finance 320 or equivalent, or consent of instructor.

526 Advanced Life and Health Insurance 3 hrs.
By means of problems and cases this course analyzes in detail the following areas: group life and health insurance, business life and health insurance, insured pension plans and estate and tax planning. Prerequisite: Insurance 422.
528 Problems in Multiple-Line Insurance  
3 hrs.

The topics studied by means of cases and problems in this course include multiple-line insurance operations, special problems in functional areas of industry operations and personal and commercial risk surveys and analysis. Prerequisite: Insurance 424.

Open to Graduate Students Only

608 Financial Management  
3 hrs.

Case study of the principles and problems underlying the management of capital in the business firm. Stresses the financial officer's responsibilities. Skills developed in the marshalling and interpreting of figure data in such activities as making and implementing capital expenditure policies, solving short-term and long-term financing problems, establishing dividend policies, effecting mergers and consolidations, and adapting to trends in financial markets. Demonstrates financial management's role in the total management effort. Prerequisite: Finance 320 or equivalent.

620 The Capital Market  
3 hrs.

Study of the sources and flow of demand and supply of credit. The business application of monetary theory to financial institutions and their operational problems. Prerequisite: Finance 310 or equivalent.

621 Investment Analysis and Management  
3 hrs.

A detailed analysis of the investigation of corporate securities as long-term investment media, largely from the standpoint of the individual investor. Investigates the techniques for security valuation and portfolio management, with some discussion of financial institution investment procedure. Considers mechanics, markets, institutions and instruments important to the investment process. Not open to students with credit earned in Finance 326 or its equivalent. Prerequisite: Finance 320 or equivalent.

622 Corporate Financial Problems (Topics)  
3 hrs.

A study of current financial management problem areas. A specific area will be covered each time course is presented. May be repeated. Prerequisite: Finance 320 or equivalent.

624 Financial Statement Analysis  
3 hrs.

Intensive financial analysis to establish trends and fiscal controls in business operations. Structural investigation of financial statement relationships utilizing ratios, capitalization of earnings, and other analysis media fundamental of management decision and action. Prerequisite: Consent of instructor.

626 Insurance and Government  
3 hrs.

This course covers the historical development, legal background, and methods of governmental supervision of the insurance industry. Principal emphasis will be placed upon state supervision of insurance, but the role of the federal government in present and future regulation is also considered. Prerequisite: Consent of instructor.

628 Risk Management in Business  
3 hrs.

This course includes the functions of risk management; responsibilities of risk
managers and their staff; sources of risk information; analysis of business risks; alternative methods of handling risks; selection of proper insurance coverages; and selection of carriers and intermediaries. Case analysis is used. Prerequisite: Consent of instructor.

LAW AREA

Professor Morrison; Associate Professors Bliss, Casey; Assistant Professors Batch, Gossman, McCarty

Open to Upperclassmen and Graduate Students

541 Law of Sales and Personal Property 3 hrs.

The study of law as it applies to the sale of goods emphasizing the legal aspects of marketing a product. Prerequisite: Law 340.

542 Law of Real Property 3 hrs.

The study of land ownerships, sales agreements, including the legal duties of the real estate broker, mortgages, land contracts, leases, zoning, condemnation and urban land development problems. Prerequisite: Law 340.

543 Legal Problems of International Business 3 hrs.

A study of the United States, foreign and international legal problems affecting business enterprises in transnational operations. Prerequisite: Law 340.

544 Law of Business Organization 3 hrs.

Study of business organizations including partnerships and corporations. Prerequisite: Law 340.

Open to Graduate Students Only

607 Legal Controls of the Business Enterprise 3 hrs.

An analysis of the current legal problems as they apply to the control and regulation of various types of business enterprises. Prerequisite: Law 340.

650 Managerial Aspects of Labor Law 3 hrs.

Background and consequences for business policy of law governing collective relationships between employers, employees, and their representatives with special emphasis on interpretation and evaluation of current legislation. Prerequisite: Law 340.

GENERAL AREA

Open to Upperclassmen and Graduate Students

504 International Business Seminar 1-6 hrs.

A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers, and business executives. The seminar introduces participants to a first-hand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned readings. Undergraduate or graduate credit of six hours, in one of the following
Management

departments upon consent of department head: Accounting, Business Education, General Business, Management or Marketing.

598 Readings in General Business 1-4 hrs.

Directed individual study of bodies of knowledge in business administration which will enhance the student’s areas of interest and competence. Prerequisite: Written permission of instructor.

Open to Graduate Students Only

600 Seminar in Business 3 hrs.

Intensive problems solving in the primary business fields. Consent of instructor required. May be repeated for credit.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Management (MGMT)

Booker, Chairman; Professors Schneider, Hartenstein, Keenan, Leader, Rizzo; Associate Professors Bradley, DeVries, Hill, Squire, Upjohn, Wallace; Assistant Professors Brightman, Mason, Pagel

Open to Upperclassmen and Graduate Students

500 Management Literature 1-4 hrs.

Studies in specialized areas of the management literature. The students will prepare an original paper on an assigned topic. Prerequisite: Permission of instructor.

540 Advanced Statistics 3 hrs.

A second course in statistics complete enough to be used with limited background. Includes probability theory, t, Z, F, and binomial probability distributions, hypothesis testing with sampling theory and Type I, Type II errors, point and interval estimates, statistical inference, comparison tests (two-sample and K-sample), association tests (correlations and regression), and nonparametrics tests. Prerequisite: MGMT 200.

553 Planning and Analysis for Production 3 hrs.

An examination of modern methods of analysis, their relation to the production process and their utilization in management planning. Cases and problems will be utilized. Prerequisites: ECON 200, 201 and MGMT 200.

554 Introduction to Management Science 3 hrs.

Modern scientific techniques used in business and industry for controlling
operations, maximizing profits or minimizing costs. Allocation of men, money, and machines among alternative uses. Other strategies and control methods applicable to management, marketing, and finance. Prerequisite: MGMT 200.

555 Electronic Data Processing (Topic) 3 hrs.

Computer programming in BASIC, FORTRAN IV and COBOL languages. Special topics relating to the planning, organization and direction of management information systems in business, industry and government. The course may be repeated for different programming languages and topics.

557 Inventory Management 3 hrs.

The practical application of modern management techniques in the definition and solving of problems in inventory systems. Prerequisite: MGMT 200 or equivalent.

564 Simulation Models 3 hrs.

The student will develop a model for the integration of the functional areas of business to create more successful management policies and organizational structures.

598 Readings in Management 1-4 hrs.

Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Permission of instructor.

Open to Graduate Students Only

600 Seminar in Management (Topic) 3 hrs.

Intensive problem solving in advanced management topics, including the preparation of a major staff report. Repeatable for different topics.

601 Data Acquisition, Reduction and Interpretation 3 hrs.

The uses and methods of research are examined as a strategy for reducing risk and uncertainty. Strategies will be evaluated under the criteria of minimizing error, economizing effort and effectively achieving the project objectives. Data classification, collection, recording and transformation techniques are related to the use of information for making judgments and decisions.

602 Data Processing and Computer Usage 3 hrs.

This course will provide the student with the opportunity to relate selected problems in his discipline to readily available analysis subroutines. Alternative methods of data manipulation will be reviewed.

607 Management Analysis and Practice 3 hrs.

Basic core course in Management for the MBA program. The spectrum of management theory and practice will be reviewed.

630 Systems Analysis (Topic) 3 hrs.

A project team effort to analyze a specified problem with the topic area listed. Separate research teams will be structured around relevant experience and training. Advanced standing (21 hours) and departmental permission required. May be repeated for credit.
642 Statistical Interpretation 3 hrs.
A survey of the advanced statistical techniques as applied to business problems. Includes probability theory; estimation of proportion, means and variances; test of hypothesis, simple and multiple regressions. Also includes topics selected from the following fields: sequential analysis; nonparametric methods; elements of experimental design; analysis of variance and introduction to statistical decision theory. Prerequisite: MGMT 200.

651 Analysis of Administrative Behavior 3 hrs.
Analysis of the contributions of management theory and of the behavioral sciences to modern administrative practices; group and individual behavior as related to and affected by the administrative process. Lectures, cases, conferences. Not open to students having received credit for MGMT 451.

652 Business Policy 3 hrs.
Integration of background acquired by the student from such varied fields of instruction as accounting, finance, industrial management, law, personnel administration and marketing. Top management problems emphasized.

655 Organization Theory 3 hrs.
An interdisciplinary approach towards the analysis of the variables affecting the modern business organization with emphasis on the relationship of the role of the social sciences to the behavior of the segments of the firm.

658 Advanced Management Practices 3 hrs.
Independent study of current trends and advanced problems in the organization and management of complex organizations. Prerequisite: twenty-one hours. May be repeated for credit.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

700 Master's Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.

Marketing (MKTG)
Trader, Head; Professor Otteson, Hardin; Associate Professors Halfhill, Orr; Assistant Professors Grimm, Kuo, Varble

Open to Upperclassmen and Graduate Students

572 Advertising: Media Campaigns and Strategies 3 hrs.
Evaluation of media and advertising through communications research, analysis and preparation of advertising as a communication tool. Includes theory and practice of media research, media plans, schedules, and strategies. Case studies. Prerequisites: MKTG 374 and 474.

223
573 Marketing Research 3 hrs.
Designed to include an introduction to market research, the procedures and applications of research, and the accomplishment of a research project. Term project includes selection of a problem, preparation of a questionnaire, data collection, analysis of data, and final report. Prerequisites: MKTG 370, MGMT 200.

574 Marketing Logistics 3 hrs.
An analysis of problems relating to the movement, handling and storage of industrial products. Attention will also be given to changing market conditions and industrial structure as they affect the physical distribution of industrial goods. Prerequisites: MKTG 370, MGMT 200.

575 International Marketing 3 hrs.
An examination of the theories and principles of international marketing. Attention directed to related commercial policies, trade practices and procedures, and marketing research tools and techniques needed to locate and evaluate foreign markets. Prerequisite: MKTG 370 or permission of instructor.

576 Marketing Problems 3 hrs.
Analysis of current marketing problems utilizing the case method of study. Prerequisite: MKTG 370 or permission of instructor.

598 Readings in Marketing 1-3 hrs.
Directed individual study of bodies of knowledge not otherwise treated in departmental offerings. Prerequisite: Consent of instructor.

Open to Graduate Students Only

607 Marketing Management 3 hrs.
Analysis of marketing activities from management point of view. Includes study of decision making relative to competition, demand analysis, cost analysis, product analysis, product design, promotion, pricing, and channels of distribution. Prerequisite: MKTG 370.

671 Market Measurement and Behavior 3 hrs.
Designed to acquaint graduate students with the growing body of tools available in the behavioral sciences and mathematics as adapted to the solution of marketing problems. Includes material in the areas of psychology, sociology, traditional statistics, Bayesian statistics, and decision theory. Consent of instructor required.

678 Seminar in Marketing 3 hrs.
Intensive problem solving in the primary business fields. Consent of instructor required.

679 Market Programming 3 hrs.
Designed for special emphasis toward developing a total marketing strategy within an organization. Practical application of the marketing tools and techniques to a current problem originating in a business organization. Prerequisite: Consent of instructor.
Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis  
6 hrs.

710 Independent Research  
2-6 hrs.

712 Professional Field Experience  
2-12 hrs.
College of Education

JOHN E. SANDBERG,
Dean

KENNETH F. SIMON,
Associate Dean

MORVIN A. WIRTZ,
Associate Dean

Graduate Offerings:
- Blind Rehabilitation
- Counseling and Personnel
- Directed Teaching
- Educational Leadership
- Physical Education for Men and Women
- Special Education
- Teacher Education
## College of Education

### Blind Rehabilitation (BLRH)

**Blasch, Chairman:** Associate Professors Kaarlela, Suterko; Assistant Professors Lennon, Widerberg; Instructors Rittersdorf, Weessies

**Open to Upperclassmen and Graduate Students**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>590</td>
<td>Physiology and Function of the Eye</td>
<td>2 hrs.</td>
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<tr>
<td>591</td>
<td>Braille and Other Communication Methods</td>
<td>2 hrs.</td>
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<tr>
<td>592</td>
<td>Education of the Blind and Partially Sighted</td>
<td>2 hrs.</td>
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<tr>
<td>593</td>
<td>Methods and Techniques of Teaching Braille and Other Areas of Communication</td>
<td>3 hrs.</td>
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<tr>
<td>594</td>
<td>Principles of Orientation and Mobility</td>
<td>3 hrs.</td>
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<tr>
<td>595</td>
<td>Introduction to Methods of Independent Mobility for the Blind</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>596</td>
<td>Practicum in Orientation and Mobility</td>
<td>4 hrs.</td>
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<tr>
<td>597</td>
<td>Introduction to Cecutiency</td>
<td>2 hrs.</td>
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</table>

**Course Descriptions**

- **590 Physiology and Function of the Eye (2 hrs.)**
  
  The anatomy, structure and function of the eye. Various eye diseases and malfunctions are stressed. The student is given an opportunity to observe all types of eye conditions and eye prosthesis.

- **591 Braille and Other Communication Methods (2 hrs.)**
  
  Provides students with a basic knowledge of the braille literary code—reading and writing.

- **592 Education of the Blind and Partially Sighted (2 hrs.)**
  
  An overview of the education of visually handicapped children and adults. An introduction to the literature, history, principles, practices and problems in the field, including curricular and methodological adaptations of various educational programs.

- **593 Methods and Techniques of Teaching Braille and Other Areas of Communication (3 hrs.)**
  
  Provides students with the ability to teach areas of communication essential to the blind, such as: social communication, use of Braille, typing, script writing, electronic devices and other media. Opportunity for supervised practical application of methods will be afforded to the student.

- **594 Principles of Orientation and Mobility (3 hrs.)**
  
  An examination, and application, of the fundamental principles underlying the acquisition of sensory information by severely visually impaired individuals.

- **595 Introduction to Methods of Independent Mobility for the Blind (2 hrs.)**
  
  Techniques are acquired under conditions which enable the student to gain an insight into the experiences of blind individuals, as related to travel skills. Emphasis is placed on the utilization of the remaining senses and their relevancy to interpretation of environmental information. Consent of instructor.

- **596 Practicum in Orientation and Mobility (4 hrs.)**
  
  Orientation and mobility techniques and the proper methods of incorporating them into a person's method of travel. Guided observation and practice with blinded individuals ranging in age from the prekindergarten through the aged in various environments, such as: school residence, community, and work situations. Consent of instructor.

- **597 Introduction to Cecutiency (2 hrs.)**
  
  Exploration of ways to assess the functional use of residual vision. Methods and means of increasing the functional use of residual vision and defining its limitations. Prerequisite: BLRH 590.
599 Gerontology 2 hrs.

The course offers an overview of the characteristics, circumstances and needs of the aging population of the United States, and explores the types of services available to meet their needs. The course will focus upon the demography of the aged, the physiological changes, and chronic diseases of aging, the social and economic aspects of aging, the psychological changes which come with age, and a review of the community resources which serve the aged.

Open to Graduate Students Only

664 Integration of Education and Social Work Techniques 3 hrs.

This course is a specialized social work course restricted to students in preparation for teaching the adult blind. It is designed to afford an opportunity for a discussion of behavior and the effect of behavior on learning and of counseling and guidance as aspects of a sound teaching relationship. Field observations and some limited work with blind clients will give the student a chance to present realistic situations in group discussion as problems in learning. Open to Blind Rehabilitation students only. Prerequisite: Consent of instructor.

692 The Dynamics of Blindness and Rehabilitation 2 hrs.

The development of the status of the blind and their integration into a sighted society. The relationship of the emotional and social correlates of blindness to the development of the blind individual as a contributing member of society.

693 Counseling of The Blind (Field) 2 hrs.

Acquaints the intern with techniques and procedures used in testing and counseling blind individuals.

696 Internship in Orientation and Mobility 8 hrs.

The intern, under close supervision of a Master Therapist, instructs blinded children and adults in all phases of orientation and mobility. The intern is afforded the opportunity to work with all levels of student in various environments. He also aids the Master Orienter in working with multihandicapped blind individuals.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Counseling and Personnel (C-P)

Martinson, Head; Professors Betz, Carlson, Engle, Faunce, Griffeth, Manske; Associate Professors Lamper, Mazer, Oswald; Assistant Professors Bullmer, Urbick

Open to Upperclassmen and Graduate Students

580 Principles and Philosophy of Guidance 2 hrs.

An introductory course which presents a thorough investigation of the philosophical concepts underlying guidance service programs: a survey of the history and
principles of guidance; an overview of guidance services. Open to all students, but is not intended for counseling majors.

581 Interpretation and Use of Tests in Guidance 2 hrs.
Designed to familiarize students with various psychological tests and scales that may be used in school guidance programs. Tests are taken and scored by students, and the results are interpreted and evaluated. Open to all students, but is not intended for counseling majors.

582 The Information Service in Guidance 2 hrs.
Designed to introduce teachers, and agency and personnel workers into the world of work. Areas of occupational, educational, personal and social information are studied. Vocational development theories are investigated and their application to processes of guidance and counseling are discussed. Open to all students, but is not intended for counseling majors.

583 Guidance Workshop 2-4 hrs.
Designed for teachers and counselors who wish to study particular guidance problems and procedures in relation to their local guidance program. Open to all students, but is not intended for counseling majors.

584 Elementary School Guidance 2 hrs.
Designed to give teachers, administrators, and elementary counselors an understanding of the principles and techniques of guidance in elementary schools. Open to all students and is a requirement for all elementary counseling majors.

598 Readings in Guidance 1-4 hrs.
An advanced student with good academic record may elect to pursue independently the study of some topic having special interest to him. The topic chosen must be approved by the instructor involved, and arrangements made with his consent. May be selected more than once.

Open to Counseling and Personnel Graduate Students Only (Graduate students from other programs may be admitted by permission of instructor.)

600 Interpersonal Communication Skills 1 hr.
Designed to provide students an opportunity to experience group counseling with the assistance of qualified group counselors through group interaction with other students. Goals of this unit include improved interpersonal communication skills as well as improved self-awareness and understanding and self-evaluation for the student. Graded on a Credit—No Credit basis. May be repeated.

610 Organization of Pupil Personnel Services 3 hrs.
A basic introductory unit encompassing a thorough investigation of philosophic concepts undergirding counseling and personnel programs in the schools. The history, principles, organization and administration of the program services are surveyed.

611 Introduction to Community and Agency Counseling 3 hrs.
A survey of counseling services, procedures and current practices of various national, state and local agencies. Emphasis is upon counseling practice in agencies with families and individuals of all ages.
Counseling and Personnel

612 (695) Student Personnel and Counseling in Higher Education 3 hrs.

History of growth and administration of student personnel services in community colleges, four-year college and universities. Specific attention will be given to selection and admission of students, orientation, housing, counseling, vocational choice, health, religion, student financial aid, foreign students, extracurricular activities, and standards and procedures.

615 Introduction to Career Development 3 hrs.

Designed as an introduction to: 1) basic resources available in the area of occupational, educational, personal and social information; 2) theories of vocational development and their application to the processes of counseling and personnel; and 3) the world of work, and especially an analysis of work's impact on American culture.

617 Introduction to Theories of Counseling 2 hrs.

An introduction to the nature, rationale, development, research and use of theories in counseling. Major points of view including the psychoanalytic, the rational, the behavioristic, the phenomenological and the existential are studied and compared. Must be taken concurrently with C-P 618. May be repeated independent of C-P 618.

618 Counseling Techniques 2 hrs.

The purpose of this unit is to help students develop skills which are essential to effective counseling. Emphasis is upon characteristics of the counseling relationship and their effect upon counseling process. Learning activities such as role playing, listening to audio tapes, video taping, practice interviews, and actual counseling situations are provided to help make theoretical constructs concrete and practical and expose the student to the counseling relationship. Prerequisite: C-P 600. C-P 617 shall be taken concurrently with C-P 618. May be repeated independent of C-P 617.

619 Tests, Measurements and Appraisal 4 hrs.

This course emphasizes application of testing and measurement procedures in counseling. Students are expected to study various psychological tests and scales used in counseling and personnel services programs and to administer, score and interpret these devices. Competencies are developed in the use of questionnaires, school records, evaluations, autobiographies, anecdotal records, sociometrics, rating scales, case studies and conferences, and parent-teacher conferences. Prerequisite: TEED 601 or equivalent.

624 (682) Research in Counseling and Personnel 3 hrs.

Designed to encourage independent study and research in the area of counseling and personnel services. The student will formulate, design and submit a research project. Prerequisites: C-P 610 or C-P 611 or C-P 612; TEED 601 or equivalent.

628 (684) Practicum and Professional Experience 4 hrs.

This unit provides practical work in the student's area of specialization. Real life experiences are provided in a laboratory setting so that the student may put into practice the knowledge and behaviors gained during previous studies. In addition, a supervised professional experience is required in a setting appropriate to the student's vocational objectives. Sections are provided for students in counseling pro-
programs and in the student personnel program. Prerequisites: C-P 610 or C-P 611 or C-P 612; C-P 615. C-P 617. C-P 618. C-P 619; credit for C-P 600 and completion of the departmental personal counseling requirement; six credit hours in cognate area.

629 Professional Seminar 2 hrs.

This unit will offer the student an opportunity for in-depth examination of current issues, research and practices in the area of specialization. Sections are offered in (1) school counseling (2) agency counseling and (3) higher education counseling and personnel administration. C-P 628 normally should be taken concurrently with C-P 629.

630 Studies in Higher Education 2-6 hrs.

Designed for career people in the fields of Administration and Student Personnel Services of Higher Education. The workshop approach will be used to introduce students to such areas as Admissions, Registration, Staff Personnel, Administrative Organization, Financial Aids, Societal and Economic Student Population Levels, Foreign Student Programs and other areas of Higher Education.

685 Field Practicum in Counseling 2-4 hrs.

This course is designed to enhance the skills of practicing counselors holding the M.A. degree in Counseling and Personnel. Emphasis is placed upon supervision of the counselor during his experiences with at least one long-term counseling case. Recent research findings in counseling, and current issues in personnel services will be discussed.

686 Topical Seminar in Counseling and Personnel 2-4 hrs.

Seminar to explore in depth current topics relevant to counseling and personnel services for advanced graduate students with sufficient maturity and experience to engage in seminar-structured learning. May be repeated for credit. Topics will be designated by professors offering the seminar and may include:

a. Analysis of individual
b. Evaluation of personnel services programs
c. Creative expression and personal flexibility
d. The development and coordination of personnel services programs
e. Administration of student personnel programs in higher education
f. Philosophy of science for the behavioral sciences
g. Counseling theories

687 Group Procedures in Education 2 hrs.

An analysis of the role and function of group procedures in education with special emphasis on the elements of group process and interaction. Attention is given to relevant research in group procedures. Limited experience for students is provided in group counseling, group guidance, and task group work.

691 Counseling Supervision 2-4 hrs.

Designed for advanced graduate students who plan to assume leadership responsibilities in the continuing education of counselors. Includes didactic discussions of the elements of counseling supervision, and practical experience in counselor education.
693 Advanced Practicum in Counseling and Psychotherapy 4 hrs.

An advanced practicum designed to increase the competency of experienced counselors and therapists. Staffing conferences approach to the analysis of continuing cases presented by the participants will be combined with tapes and live demonstrations of advanced techniques, e.g., desensitization, hypnosis. Prerequisite: Consent of instructor.

694 Vocational Development Theory 2 hrs.

A critical examination of existing theories of vocational development, the motivation to work and their application to the counseling process. Research pertaining to vocational development and the world of work will be analyzed.

696 Practicum in Group Counseling 3 hrs.

Supervised practice in counseling with groups of varying types and ages. Staffing conferences of on-going groups will use audio and video tapes, content analysis and other evaluative techniques. Prerequisite: Consent of instructor.

Open to Graduate Students—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

720 Specialist Project 2-6 hrs.

725 Doctoral Research Seminar 2-6 hrs.

730 Doctoral Dissertation 15 hrs.

Directed Teaching (DTCH)

Sebaly, Chairman; Associate Professor Benne

Open to Graduate Students Only

669 Strategies in Teaching: Variable Topics 1-4 hrs.

Designed for teachers and administrators who work with student teachers and wish to study supervisory and administrative problems and procedures. Emphasis is placed upon the development skills in evaluation, planning, and the various supervisory strategies in working with student teachers in the classroom as well as the building or school system. Note is taken of current literature, and research methods used in working with student teachers. Prerequisite: Teaching experience or consent of instructor.
Open to Graduate Students Only

660 Administration and Supervision 2-4 hrs.

Offerings in this area are intended to allow educational leaders to acquire the general understandings, skills, and tools necessary in the operation of educational agencies and to provide service courses for teachers and other education personnel. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:

a. Administration and Supervision of Adult Education
b. Principles of Community Education
c. Practicum in Community Education
d. Planning of Educational Facilities
e. School Finance
f. School Business Management
g. Mott Administration Seminar
h. Introduction to Educational Leadership (the first course in any degree program in this department)
i. School Law
j. School Principalship
k. Field Seminar (an interdisciplinary approach to in-service problem)

661 Human Relations 2-3 hrs.

These offerings are for students who are expected to have background in the behavioral sciences. Emphasis is on skills that give one proficiency in working with people; the ability to understand people and how they work and live and get along together; and to use that understanding in getting the best from people, individually and in groups. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings in any one semester or session.

Typical topics to be offered include:

a. Supervision
b. Administration of Staff Personnel
c. Mott Colloquium
d. Public Relations
e. Practicum in Leading
f. Teacher-Administrator Relationships

662 Concept Formation 2-4 hrs.

Each of these offerings focuses on concepts that should help the student to see the relationships of parts to wholes, of education to the larger culture, of specific
occupations to overall institutionalized functions and to the world of work. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:

a. The American Educational Scene
b. The Process of Curriculum Development
c. Theory of Leadership
d. Introduction to Operations Analysis
e. Educational Data Processing
f. Policy Making in Higher Education

663 Research 2-15 hrs.

Offerings are intended to provide the necessary understandings, attitudes, and skills to make every student working for a degree in this department a competent and discriminating consumer of research. The student who wishes to do so can specialize sufficiently to become a competent researcher or a director of research. Topics will vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:

a. Introduction to Research
b. Design—Data Analysis I
c. Design—Data Analysis II
d. Dissertation Seminar
e. Survey Research

Independent Studies

Offerings in this area are intended to allow a student in any degree program in this department to demonstrate how well he can learn working alone but under faculty supervision. Offerings are intended also to allow the student to become acquainted on a one-to-one basis with at least one faculty member.

Open to Upperclassmen and Graduate Students

598 Readings in Educational Administration 1-4 hrs.

An advanced student with a good academic record may elect to pursue independently the study of some topic having special interest to him. Topic chosen must be approved by and arrangements made with written consent (C-card signed by the instructor to be involved). May be elected more than once.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.
Physical Education for Men and Women (PEGR)

Men's Department Head, Hoy; Women's Department Chairman, Meyer; Professors Dales, Large, Ray, Roell; Associate Professors Chambers, Cheatum, Davis, Doolittle, Jevert, Jones, Miller, Slaughter, Zabik; Assistant Professor Orlofsky

Open to Upperclassmen and Graduate Students

514 Methods and Materials in Health Education 2 hrs.

Lectures and demonstrations with emphasis on effective health supervision of school children, principles and practices of health teaching in the various grades, and interrelation of this teaching with that of other subjects in the curriculum. Prerequisites: PEW 342 and 343, or consent of instructor.

516 Issues in Health Education 1-4 hrs.

Issues vary or occasionally repeat depending on the timeliness of the issue. Following are currently recommended themes: (a) Sex Education. (b) Smoking Education. (c) Drugs and Narcotics. (d) Safety Education. (e) Environmental Pollution. (f) Health Education and the Culturally Deprived. (g) Mental Health. (h) Venereal Disease. Student may register for 516 more than once but may not repeat the same issue.

530 Studies in Health, Physical Education, and Recreation (HPER) 1-3 hrs.

In depth examination of selected topics in HPER. Format can include clinics, workshops, seminars, travel, and/or mini-courses; and provide opportunity to acquire skills and teaching techniques. Outstanding state, national, and international authorities may be involved when feasible.

545 Philosophies of Physical Education 2 hrs.

A study of the ideas and concepts of various philosophical schools as they apply to physical education.

560 Administration of Physical Education 2 hrs.

For administrative officers, as well as for teachers and directors of physical education. Includes a study of representative programs of physical education and a discussion of standards for evaluating such programs.

561 Principles and Problems of Coaching 2 hrs.

Role of athletics in education is explored. Problems in directing an athletic
### Physical Education for Men and Women

Program, such as ethics, eligibility, finance, liability, transportation, safety, facilities, and equipment are discussed.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>562</td>
<td>Administration and Organization of Physical Education</td>
<td>2 hrs.</td>
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<tr>
<td></td>
<td>Discusses administrative procedures and problems connected with physical education programs, including scheduling, facilities, personnel problems, and public relations.</td>
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<td>580</td>
<td>Prevention and Treatment of Sports Injuries</td>
<td>3 hrs.</td>
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<td></td>
<td>Survey of sport medicine with emphasis on injury prevention, diagnosis, and management. An in-depth study is made of specific injuries occurring frequently to sports participants. Two hours lecture and two hours lab per week. Prerequisites: PEM 280, BIOL 210 and 219, or consent of graduate adviser.</td>
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<tr>
<td>590</td>
<td>Exercise Physiology</td>
<td>2 hrs.</td>
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<td>The mechanics of muscular contraction, nerve impulse conduction, oxygen exchange, and circulatory efficiency are discussed. Basic principles concerning the adaptation of the human body to stress in the form of strenuous physical exercise are applied to the training and conditioning of competitive athletics. Prerequisites: BIOL 210 and 219.</td>
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<tr>
<td>598</td>
<td>Readings in Health, Physical Education, and Recreation</td>
<td>1-4 hrs.</td>
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<td></td>
<td>Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approval of department head.</td>
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Open to Graduate Students Only

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<td>630</td>
<td>Advanced Coaching</td>
<td>1-2 hrs.</td>
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<td>Problems in the coaching of fundamentals, organization, rules, regulations, strategy, techniques of selected sports in public schools and colleges. Actual participation in activities where possible. Either coaching experience or completion of an undergraduate major or minor in the field of physical education is a prerequisite. Each course carries separate credit, although all are listed under 630.</td>
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<tr>
<td></td>
<td>a. Archery — Purchase and care of equipment, preparation for camp and school instruction, conditioning exercises, tournament organization.</td>
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<td>b. Baseball — Public relations, practice organization, conditioning techniques and game preparations.</td>
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<td>c. Basketball — Practice organization, defensive and offensive strategy, scouting techniques.</td>
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<td>d. Football — Organization of practices, defensive and offensive strategy, scouting techniques.</td>
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<td>e. Golf — Meets, tournaments, purchase and care of equipment.</td>
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<td>f. Gymnastics — Cinematic analysis and spotting of advanced skills, judging of meets.</td>
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<td>g. Swimming — Conduct of meets, pool programming, sanitation and operation, beach and camp programs.</td>
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<tr>
<td></td>
<td>h. Tennis — Training and conditioning, drills for indoor instruction, and officiating techniques.</td>
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College of Education

i. Track—Training and conditioning for individual events, planning and conduct of meets.

j. Wrestling—Administration of dual meets and tournaments, relations with community and school personnel, introduction to collegiate and olympic moves and counters.

631 Prevention and Treatment of Athletic Injuries 2 hrs.

The prevention, etiology, symptoms, pathology, and prognosis of those injuries occurring most frequently will be studied. Treatment techniques and rehabilitation procedures will be demonstrated. Medical specialists will lecture in their special areas related to athletic injuries.

640 Rhythms in Elementary Education 2 hrs.

A study of the rhythmic movement needs of the elementary school child, including: suggested methods of teaching through which children are stimulated to create their own responses in rhythmic play; folk and social dancing as outgrowths of movement fundamentals; and teaching examples, sample less plans, and up-to-date reference sources. Lecture and activity periods.

641 Physical Education for the Elementary Teacher 2 hrs.

A study of the developmental needs of the child in terms of physical activity: the role of physical education in childhood education; the responsibility of the classroom teacher in this area; demonstrations and practice in teaching activities.

650 Evaluation in Health, Physical Education, and Recreation 2 hrs.

Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests.

651 Research Procedures in Health, Physical Education, and Recreation 2 hrs.

Introductory principles of scientific inquiry, research methods applicable to these fields, evaluation of published research, and procedures for developing a research design.

652 Historical and Philosophical Foundations of Physical Education 2 hrs.

Designed to examine the role of physical education in ancient and modern times. Stress is given to significant concepts, events, and people which have influenced this discipline. Special attention will be paid to developments resulting from the work of international professional organizations interested in HPER.

661 Problems and trends in Health, Physical Education, and Recreation 2 hrs.

Deals with modern trends, and with instructional and supervisory problems involved in conducting an effective program of physical education. Critical appraisal of present practices.


A course in the development of a practical, progressive physical educational program for the elementary and secondary schools. A review of children’s characteristics, particularly those concerned with physical education will be used as a basis for thorough analysis of the development of fundamental and basic skills at the various age levels.
663 Supervision in Health, Physical Education, and Recreation 2 hrs.
Applicable to men and women physical education specialists who have the responsibility of supervising physical education teachers. Concerned with studying the role of the supervisor and appropriate and effective techniques unique to physical education and their application to the teacher-pupil learning situations. Discussions of the supervisory responsibility and function in city, county, and state school systems.

670 Community Recreation 2 hrs.
Problems in community recreation. The essential elements pertaining to leadership, areas, facilities, programs, activities, and methods of organization and administration are concerned. A study is made of outstanding programs in operation. Recreation material is surveyed.

671 Camping Administration 2 hrs.
The organization and administration of camps and their program requirements and standards. Consideration is given to philosophy and objectives, personal skills in camp activities and methods of teaching them. Visits to camps are made and out-of-door activities are experienced.

672 Methods and Materials in Recreation 2 hrs.
Best methods and materials for the teaching and organization of recreation activities. Activities used in recreation will be presented. Opportunities for organization and actual participation and leadership will be given. This course is open to all graduate students.

680 Advanced Studies in Health, Physical Education, or Recreation (HPER) 1-3 hrs.
Areas of study.
a. Business Procedures and Public Relations
b. Comparative Physical Education
c. Planning Facilities for Health, Physical Education and Recreation
d. Outdoor Education and Recreation
e. Lifetime Sports
f. Physical Education for Exceptional Children
g. Recreation for Exceptional Children
h. History and Philosophy
i. Sport and Society

Open for Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.
**College of Education**

**Special Education (SPED)**

Eisenbach, Head; Professors Sellin, Wirtz; Associate Professors Ashbaugh, Lawrence, Nicolaou; Assistant Professors Hannaford, Henderson, Howell

Open to Upperclassmen and Graduate Students

512 Workshop in Special Education 2-4 hrs.

Designed for teachers, counselors, psychologists, social workers and others interested in studying selected aspects of special education at appropriate locations, such as state hospitals and special schools. A variety of instructional experiences are provided, including conferences.

528-29 Interdisciplinary Education and Rehabilitation Techniques 4 hrs. (2 per. sem.)

This course is intended to develop a thorough understanding of the roles of the various disciplines involved in the diagnosis, education, and rehabilitation of exceptional children and youth. Lectures, taped and filmed interviews, and live demonstrations are utilized.

530 Education of Exceptional Children 3 hrs.

This course is primarily concerned with children and youth who are visually, auditory, orthopedically and/or emotionally atypical. Emphasis will be placed on developing and understanding of the psychological, sociological, educational and philosophical aspects of each type of exceptionality. Present programs and services are described and evaluated. Field trips are made to public and private schools, institutions and agencies.

531 Practicum in Special Education 2 hrs.

Students enrolled in this course will be assigned to special classes in public or residential schools serving exceptional children and youth. Observation and participation will be combined with weekly seminars. Undergraduate students majoring in special education are required to enroll in Special Education 530 and 531 concurrently. Admission to this offering will be determined by the number of placement opportunities available.


A course especially intended for teachers of mentally handicapped children. Also recommended for school counselors, psychologists, social workers and other auxiliary personnel. Course objectives include an understanding of the causes, diagnoses, classification and interpretation of mental deficits. Prerequisite: SPED 530 or equivalent.

533 Diagnostic and Prescriptive Techniques in Special Education 4 hrs.

A thorough study of educational diagnostic instruments and techniques will precede the student’s utilization of these measures in evaluating exceptional children in his curricular area. Diagnostic findings will be translated into individualized educational prescriptions. For majors enrolled in Special Education curricula and to be taken concurrently with Special Education 534. Prerequisites: SPED 530, 531 and consent of Department.
534 Curricular and Instructional Provisions for Exceptional Children and Youth 4 hrs.

Critical issues in determining curricular expectations for atypical individuals will be analyzed. Essentials in ascertaining appropriate behavior for these pupils will be combined with identifying and evaluating a variety of educational methods and materials. Students enrolled in this course will be expected to delineate behavioral goals for those evaluated in Special Education 533 and translate diagnostic data into meaningful educational programs. Prerequisites: SPED 530, 531 and concurrent enrollment in 533.

536 Contemporary Issues in Special Education: Honors Seminar 1 hr.

A course especially designed for selected undergraduate majors in special education curricula. Emphasis will be placed on theoretical discussion of social, philosophical, economic and educational problems related to the education of exceptional children and youth. Prerequisites: SPED 530 and 531, and faculty approval of the applicant.

543 Nature and Needs of Crippled and Homebound Children 4 hrs.

Study of educational, psychological, and therapeutic needs of crippled children and the role of allied disciplines in meeting these needs. Prerequisite: SPED 530 or equivalent.

588 Behavior Disorders in School-Aged Children 3 hrs.

Deals with the psychoeducational aspects of disturbed or disturbing behavior as related to the school program. Issues and problems associated with normal development, concepts of diagnosis, and the incidence of maladjustment will be reviewed. The characteristics, causes, diagnosis, and treatment of the effects of such conditions in children as psycho-neurosis, mental subnormality, juvenile delinquency, psychosis, learning disability, and social disadvantage will be examined in terms of their educational implications. Therapeutic, environmental, and classroom interventions will be presented and strategies for prevention will be analyzed. Prerequisites: SPED 530 or equivalent and consent of Department.

589 Programs and Intervention Strategies for the Socially and Emotionally Maladjusted 4 hrs.

This course, open only to majors in Special Education curricula, will emphasize techniques and procedures applicable to socially-emotionally maladjusted children in various special or public school settings. Current theories, contemporary programs and trends in behavioral change and management will be reviewed and discussed. Prerequisites: SPED 530, 531, 588 and consent of Department.

Open to Graduate Students Only

620 Educational Appraisal of the Exceptional Child 2 hrs.

This course offers experienced special classroom teachers and other special education personnel an opportunity to analyze and utilize formal and informal techniques of evaluating exceptional children and youth. Major importance is placed on translating diagnostic data into realistic curricular expectations. Emphasis is also placed on developing interdisciplinary relationships in the evaluation and placement of exceptional children. Prerequisites: Consent of Department.
College of Education

621 Curriculum Development for Exceptional Children and Youth 2 hrs.

This course is designed to provide experience in construction, implementation and evaluation of group and individual behavioral expectations. Critical issues in curriculum development for the exceptional child will be examined and discussed. Prerequisite: Consent of Department.

630 Clinical Study of Exceptional Children 2 hrs.

This course is intended to illustrate methods of diagnosing and treating problems of exceptional children. Students make observations and interpretations of the children and carry on remedial work with them. The contributions of other professions will be incorporated. Prerequisite: Consent of Department.

633 Education of Gifted and Talented Children and Youth 2 hrs.

This course is designed to develop a student's understandings of the appreciation for the abilities, interests, talents, and problems of gifted children and youth. Attention will be given to methods and criteria used in identifying gifted, talented and creative individuals. Through the use of available research data, students will be required to complete a critical evaluation of educational provisions including segregation, acceleration, and enrichment. Personal, social and cultural factors which directly or indirectly influence the growth and development of these individuals will be considered. Prerequisite: Consent of Department.

634 Theory and Practice in the Education of Perceptually Handicapped Children 4 hrs.

This course explores the biological, psychological, and educational problems of children who exhibit specific characteristics associated with brain injury and perceptual disturbances. The underlying theoretical principles of perceptual and conceptual learning are presented. Educational procedures are discussed and various methodologies are examined. Children with perceptual handicaps are studied, and the students learn to prepare appropriate teaching devices. Prerequisite: Consent of Department.

635 Counseling Parents of Exceptional Children 3 hrs.

This course explores the dynamics of parental reactions to their handicapped children. Techniques of dealing with stress situations in the home, in the school, and in the community are developed. The students are given opportunities of working with parents of exceptional children and helping them in coping with the problems they face. Prerequisite: Ten hours in Special Education and consent of Department.

636 Topical Seminar in Special Education 2 hrs.

To provide a survey or in-depth coverage of topics directly related to the education of exceptional children and youth. May be repeated for credit. Prerequisite: Consent of the Department.

637 Research Practicum in Special Education 2 hrs.

Students enrolled in this course will be expected to implement a research proposal (previously designed in TEED 601) related to the education of exceptional children, conduct an investigation, collect, analyze and interpret data, and prepare a comprehensive written report of the study. Prerequisites: TEED 601 and consent of the Department.
638 The Application of Behavior Theory to Classroom Teaching 3 hrs.

Emphasizes the implications of the principles of behavior theory for classroom teaching techniques, particularly with exceptional children. Introduction to general and specific methods for generating, strengthening and maintaining desirable behavior, and methods for weakening undesirable behavior. Both academic skills and non-academic behaviors will be included. Normal and abnormal behaviors will be discussed. Direct experiences in modifying the behavior of a school-age child will be arranged. Prerequisite: Consent of Department.

640 Organization and Administration of Special Classes and Services for Exceptional Children 2 hrs.

Principles and practices of organization and administration of special programs at state, county, and local levels will be considered, including legal aspects of state aid. Prerequisite: Consent of Department.

674 Directed Teaching in Special Education 3-6 hrs.

This course is a requisite for graduate students who are preparing to teach in special education. The course is preferably taken after directed teaching has been completed in a regular classroom.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Teacher Education (TEED)

Moore, Chairman; Distinguished University Professor Travers; Professors, Adams, Ansel, Bosco, Buelke, Cain, Chiara, Curl, Erickson, Govatos, Griggs, Johnson, Kanzler, Lambe, Lloyd, McGinnis, Middleton, Stroud, Swickard; Associate Professors Bladt, Burns, Chapel, Dickie, Fisk, Harring, Heger, Heining, Hessler, Inselberg, Miller, Mortimore, Smidchens, C. Smith, Stewart, Taylor, Walker; Assistant Professors Armstrong, Bailey, Brashere, Brenton, Cordier, Cowden, Crowell, Dube, Hagberg, Kilty, Senda, D. Smith, Vander Meulen, Watson

CORE COURSES

Each graduate student in Education, regardless of specialization, is expected to show competence in at least three professional areas: research, curriculum, and foundations. These are considered minimal requirements for career positions as teachers, administrators, counseling personnel, or curriculum specialists. Such competence will normally be provided through nine semester hours of course work in the following courses: TEED 601, 602, 603, and 604. In certain curricula, such as Counseling and Secondary Teaching, modifications of this requirement are permitted to provide for needed flexibility.

Open to Graduate Students Only

601 Introduction to Research in Education 3 hrs.

This course is intended to develop an understanding of the major types of
educational research and application of research findings to educational problems. Emphasis is placed upon familiarity with sources of research, competence in the interpretation of research reports and abstracts, understanding of the techniques of conducting discriminating search of the literature, and the development of skills in research writing.

602 School Curriculum 3 hrs.
This course, designed for teachers and administrators at all levels, attempts to analyze the decision factors stemming from societal forces, psychological, cultural, and developmental needs and perceptions of learners, and internal structures of the disciplines as guidelines for a curriculum emerging from and serving a democratic society.

603 Social and Philosophical Foundations 3 hrs.
A cultural approach to the development of American educational policy and practice in its broad social setting. Consideration is given to historical, economic, social and philosophical factors which influence educational thought and practice. The need for historical perspective and sound analysis of conflicting points of view is emphasized in the interpretation of current educational issues and the alternative solutions of present educational problems.

604 Psychological Foundations of Education 3 hrs.
An overview of the psychological forces that influence the learner in his educational setting; with special emphasis on the nature and significance of human variability, development of self, measurement and evaluation, and a consideration and application of principles of learning to classroom situations.

Open to Upperclassmen and Graduate Students

502 Curriculum Workshop 1-6 hrs.
Opportunity provided for teachers, supervisors and administrators in selected school systems to develop programs of curriculum improvement. This may include short-term offerings to resolve a particular curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audio-visual materials and the like. Each offering of 502, Curriculum Workshop, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 502 may be applied toward a Master's degree.

506 Adult Education 2-3 hrs.
This course will include such topics as organizing and financing formal public school adult education programs, promoting informal adult education activities, leadership training, program planning, and adult education group techniques. Students will be permitted to select special areas of interest for research and study.

507 Teaching of Social Studies in the Elementary Schools 3 hrs.
This course is designed to help teachers understand the role of the social studies in the elementary school, gain insight into important considerations in the selection of content, and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with children in a classroom setting will be emphasized.
508 Parent Education 2 hrs.

Places major emphasis on home problems which have educational implications for the child. Parent-teacher relationships, council programs, and cooperative efforts for improvement of education in home and in school are studied.

509 Social Studies for Culturally Different Children 3 hrs.

Designed to help elementary teachers understand the role of social studies in a pluralistic society and the factors which tend to inhibit cooperation and communication across social class and racial barriers. Planning social studies experiences and ways of working with culturally different children in a classroom situation will be emphasized. Registration limited only to people in Career Opportunities Program in Grand Rapids.

510 The Elementary Curriculum 2 hrs.

A consideration of content and procedures to adapt experiences of pupils in elementary schools to modern conditions and to child needs and interests. Individual or committee reports concerning the improvement of various aspects of the elementary school curriculum will be prepared.

511 Developmental Reading Theory and Application 3 hrs.

Emphasizes the application of reading theory in the teaching of reading skills to elementary and secondary students. Intensive study of the theory and practice of individualized reading, language experience approaches, and basal reading materials will be made. Will focus on the actual use of materials with pupils to provide practical experiences in teaching on an individual and small group basis. Efficiency of reading procedures will be studied through actual use with pupils. Prerequisite: TEED 312 or 322 and permission of instructor.

514 Nursery-Kindergarten Education 2 hrs.

This course will acquaint the students with the history and presentday status of nursery school and kindergarten education. Consideration will be given to the organization, equipment, curriculum and approved teaching procedures.

515 Seminar in Teaching of Social Studies 3 hrs.

Consists of two parts: perspectives and implementation. Under perspectives, a staff of social scientists will share with the participants their thinking concerning significant ideas and concepts from their disciplines that further amplify topics covered. Opportunities will be provided for the participants to implement social studies methods and skills in actual classroom and other situations. Registration limited only to people in Career Opportunities Program in Grand Rapids.

525 Rural Life 2 hrs.

Critical study of recent books in rural social life. Consideration is given to individual problems related to social aspects of community life. Special problems are selected for study by each student. Field work is encouraged. Prerequisite: TEED 220.

527 Instructional Planning in Accountability Context 3 hrs.

The purpose of the course is to assist the student in developing an understanding of models of accountability in education; in writing educational goals and performance objectives; in using various assessment procedures to determine the
needs of the learner and the extent to which objectives have been achieved; and in
determining appropriateness of instructional procedures for specified educational
goals.

530 Introduction to Career Education 3 hrs.
This course is designed to acquaint teachers with the concepts of career
education. Course work is centered on ways and means to incorporate career
education into the existing curriculum structure at all levels of instruction.

535 Introduction to Teaching the Disadvantaged 3 hrs.
Designed for teachers and administrators who are presently working with
disadvantaged children and youth. Class meetings are centered around problems
arising from practical situations, particularly with respect to affective factors of
environment and their relation to teaching and learning. Extensive use is made of
consultants from social, governmental and educational agencies working with the
disadvantaged.

542 Administration and Methods of Driver Education 2 hrs.
History, philosophy, and psychology of driver education. Emphasis on organi-
zation and administration of high school Driver Education programs. Laboratory
work in dual control cars and driving range programs. Prerequisite: TEED 442.

544 Psychology of Driver Education 2 hrs.
Psychological and perceptual aspects of the driver and traffic safety. The role
of the teacher in influencing driver behavior. Research in traffic safety. Prerequisite:
TEED 442.

548 Audiovisual Media I 3 hrs.
An introduction to audiovisual media as effective means for achieving educa-
tional objectives in presentational, interactive, and individualized modes of instruc-
tion. Emphasizes evaluation, selection, production, and classroom use of com-
mercially available and locally produced instructional materials. Students are ex-
pected to participate in laboratory experiences in which they produce materials such
as mounted and laminated pictures and displays, overhead projection trans-
parencies, audio tapes and photographic slides, and to demonstrate proficiency in
the operation of audiovisual equipment. In addition to texts, each student should
plan to spend $15 or more for supplies and have the use of a simple camera. Limited
to 30 students.

549 Audiovisual Media II 3 hrs.
A continuation of TEED 548, in which teachers and media specialists consoli-
date basic audiovisual skills and deal in depth with more advanced processes and
techniques. Laboratory experiences may include production of complex trans-
parencies, photographic slides, filmstrips, and prints, super 8 films, audio and video
tapes, duplicated materials, and more sophisticated charts, posters, and displays. A
systematic production planning process is emphasized, with consideration given to
evaluating effectiveness of media and to requirements for operating a school build-
ing level media center. In addition to texts, each student should expect to spend $15
or more for supplies and should have the use of a versatile camera. Limited to 15
students. Prerequisite: TEED 548 or equivalent experience.
550 Photography Workshop 1-3 hrs.

Intended to sharpen visual perception while improving technical skills, this laboratory course emphasizes photography as a creative and expressive medium of visual communication. Each student is expected to produce new photographs each week and to submit one or more mounted enlargements for group critique at each class meeting. Each student must have the use of appropriate equipment and should expect to spend $25 or more for supplies. Although no prerequisite is required, it is helpful to have had some experience with basic darkroom processes. May be repeated up to a total of six credits. Limited to fifteen students.

552 Comparative Education 3 hrs.

This course is intended to provide students with an introduction to the field of comparative/cross-cultural education. The educational philosophy and goals, curricula, administrative structure, educational technology, financing and methods of instruction characteristic of selected European countries and examined and compared to parallel features of the American educational system.

555 Alcohol Education 2 hrs.

Deals with problems of alcohol education in the school and community, with special emphasis on teaching methods and procedures, relationships with governmental and social agencies, and administration of programs.

560 Practicum: Sociological and Psychological Foundations of Teaching the Disadvantaged 3-6 hrs.

The initial course required of all students in the MA program for teaching the disadvantaged. Designed to develop awareness of family situations, community conditions, behavior, value systems, and characteristics of the disadvantaged, as well as to develop positive attitudes toward these children and their problems. Consists of readings, lecture-discussions, and field experiences with the disadvantaged, including home visits, visits to social and governmental agencies, and school experiences including supervised teaching. Generous use is made of consultants from all agencies dealing with the problems of the disadvantaged.

586 Clinical Studies in Reading 2 hrs.

This course is intended to provide the basic information needed in the examination of persons with reading disorders. Interviewing techniques and examination procedures will be the basic content of the course. Emphasis will be placed on the physical, psychological and sociological factors affecting reading performance.

587 Educational Therapy in Reading 2 hrs.

The psychological, sociological and physiological factors affecting children’s reading ability, together with laboratory application of such knowledge in the prevention, diagnosis and treatment of reading problems.

588 Evaluation in Education 2 hrs.

Designed to develop skills, techniques, attitudes and understandings involved in the measurement and evaluation of individual learning and development as well as in the appraisal of the total school program. Emphasis is placed on the construction, use and interpretation of formal and informal evaluation devices, and upon the development of a philosophy of evaluation as an integral part of learning.
597 Reading and Related Language Experiences 2 hrs.
A study of the current research in the many aspects of language which are involved in the process of effective reading.

598 Selected Reading in Education 1-4 hrs.
Designed for highly qualified students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental adviser and instructor.

Open to Graduate Students Only

608 Interdisciplinary Seminar 3 hrs.
This seminar is taught by a team of faculty members chosen from such areas as sociology, economics, psychology, philosophy and education. It is designed to provide breadth and depth in understanding. May be taken more than once.

610 Guiding Child Development in the Elementary School 2 hrs.
Designed to help nursery, kindergarten and elementary school teachers gain an understanding of the manner in which skills, information, attitudes and behavior patterns are acquired and modified. The contributions of each curricular area, such as: language, arts, arithmetic, science, social studies, health, etc., are stressed with emphasis on suitability of experience for different stages of growth, instructional practices and appropriate procedures of evaluation.

615 Seminar in the Teaching of Reading 2 hrs.
Designed to acquaint teachers, reading specialists and administrators with the current literature, research, methods and materials used in teaching children how to read. Special emphasis is placed on reading in relation to other aspects of language and on reading in the content fields. Prerequisite: TEED 312 or equivalent.

621 The Secondary School Curriculum 2 hrs.
Covers modern practices and recent emphasis and trends in subject areas of the secondary school curriculum.

622 Middle-Junior High School Curriculum 3 hrs.
An analysis of selected topics in middle and junior high school development, trends and purposes. The focus of the course will be substantive as well as theoretical and methodological in areas of psychological and philosophical foundations: curriculum patterns; student activities programs; administrative, guidance and evaluation procedures. Special attention is given to the objectives and content of general education and the integration of learning in an open class environment.

641 Instructional Development 3 hrs.
Intended for media specialists and experienced teachers, this course employs an accountability model for application of media research and technology to actual courses and units of instruction. Students follow a systematic instructional development procedure from task analysis to evaluation, working either with their own students or as assistant and consultant to another teacher. Prerequisite: TEED 548 or equivalent experience.
642 Photographic Communication 3 hrs.
Explores uses of photography in the communication of ideas, considering techniques of composition, lighting, equipment operation and basic photographic processes as means toward achieving an effective visual statement. Following preliminary assignments, each student plans and produces a picture story or photo essay suitable for publication and a synchronized sound/slide presentation for a specified audience. Considerable laboratory time is required outside of class. In addition to text materials, each student must have the use of a high quality, versatile camera and should expect to spend $25 or more for supplies. Limited to fifteen students. Prerequisite: TEED 549 or 550 or equivalent experience.

643 Practicum in Clinical Studies in Reading 2-4 hrs.
A laboratory course providing experiences in integrating facts provided in the child’s history with facts resulting from the administration of objective measures. Practice is given in identifying relevant data and explaining causal factors and their interrelationship. Experience is provided in the diagnosis of reading problems in the Reading Center and Clinic. Prerequisites: TEED 586 and 587.

645 Advanced Production of Audiovisual Media 3 hrs.
A laboratory course in which principles of graphic communication are applied to the design and production of instructional media. Provides an opportunity for the graduate student to pursue selected techniques in depth and to become acquainted with processes needed by the educational media production specialist. This course may be repeated for credit as different topics are offered. In addition to text materials, each student should expect to spend $25 or more for supplies. Limited to fifteen students. Prerequisites: TEED 548 and 549 or equivalent experience.

646 Studies in Educational Technology 1-3 hrs.
Explores theory and innovative developments in educational technology and suggests practical instructional applications. Such topics as the following may be considered: Design and Analysis of Individualized Instruction, Instructional Simulation and Gaming, Computer Applications in Instruction, and Diffusion and Adoption of Innovative Practices in Education. This course may be repeated for credit as different topics are offered. Prerequisite: TEED 548 or equivalent experience.

647 Administration of Audiovisual Media Programs 4 hrs.
Considers audiovisual aspects of a unified instructional media program, including allocation and management of space, time, budget and personnel; selecting, organizing, distributing and maintaining materials and equipment; providing in-service education in audiovisual methods for teachers and interpreting the media program to administrators, staff, students, and the community. Prerequisite: TEED 548 or equivalent experience.

648 Instructional Media Seminar 3 hrs.
An analysis and comparison of instructional media programs and facilities. Students examine existing media center operations and prepare recommendations and working plans either for organization of a few media program or for re-organization and improvement of certain phases of operation in an on-going center. Limited to fifteen students. Prerequisite: TEED 548 and 647 or equivalent experience.
649 Problems of College and Adult Reading 2 hrs.
An advanced laboratory course covering philosophy, principles, and practices of a developmental program in reading for college students and adults. Lectures, discussions, and demonstrations will center around teaching techniques in common practice.

650 The Characteristics of the College Student 2 hrs.
This course is intended for students who are preparing to teach at the senior college or the community college level. Its focal point is an understanding of the capabilities, behaviors, attitudes and motivations of the college student. Among the topics to be considered will be academic adjustment, separation from home and family, use or abuse of newly-acquired autonomy, economic stability, campus social life and interpersonal relations as they affect academic achievement.

651 Philosophy of Education 2 hrs.
For graduate students and teachers of experience. Analyzes basic ideas, concepts and value-systems affecting educational practices; stresses a comparison of philosophical schools, historical and contemporary.

653 Practicum in Reading Therapy 2-4 hrs.
An instructional internship for working with individual pupils who have problems in reading and related areas. The course provides, through the service of the Reading Center and Clinic, supervised therapy experiences with a variety of reading problems. Emphasis will be placed upon the study, application and evaluation of therapeutic procedures. Prerequisites: TEED 586 and 587.

654 Practicum in Reading Supervision 2-4 hrs.
Principles and practices of organization and administration of reading programs for elementary, secondary, college, and adult students. Deals with the role of the reading consultant and the problems associated with providing effective reading instruction. Includes participation in classrooms and conferences with teachers concerning instructional goals, materials and procedural approaches.

655 Seminar in Learning 2-3 hrs.
Open to selected graduate students with the consent of the instructor. Analyzes research in the field of learning, including effective factors, input and retention of information, and concept formation.

656 Organization and Administration of Reading Programs 2 hrs.
A study of the process and procedures which may be employed in organizing and administering reading programs at the elementary and secondary levels. Emphasis is placed on the examination of existing programs and practices with a view toward improving in-service education for all teachers.

659 Seminar: Methods and Techniques in Teaching the Disadvantaged 3 hrs.
This seminar deals with problems inherent in educational programs for underprivileged youth. Emphasis is placed on developing a depth of understanding and resolutions to such problems as: curriculum development, methodology, school organizational innovations and audiovisual adaptation of existing materials to the teaching of disadvantaged children. Students are encouraged to enroll for the semi-
Teacher Education

687 Improvement of Reading in Secondary Schools
2 hrs.
Designed to aid teachers in developing their reading abilities and skills for their students at the junior and senior high school level. Emphasis is on aims, materials and procedures.

690 The Community College
2 hrs.
Studies the historical development of the junior and community college movement: the function of the community college in the total educational program; the divergent aims and curricular requirements of pre-professional, academic and pre-vocational courses; the guidance and counseling function; community services programs; and methods and materials of instruction at the college level.

698 Resolving Educational Problems in the Schools
1-6 hrs.
With variable topics and variable credit, this course is offered for in-service teachers, supervisors, and administrators who come together from one school system, or from more than one school system in the same geographical area, in order to solve school problems which they are encountering in the field. Problem-solving techniques, theoretical and evidential support for solutions, and workshops will be applied to actual school or classroom situations. The topic of the course will be stated in the schedule each time the course is offered. School systems wishing to enroll a team of teachers, supervisors, and administrators to solve particular problems should apply to the Chairman of the Department. Students may repeat this course, providing topics vary. No more than six hours of 698 may be applied toward a graduate degree.

699 (GRAD 715) Seminar in College Teaching
2 or 4 hrs.
Designed for students who are interested in preparation for college teaching. The student is expected to enroll for four credit hours, work with a faculty member in his major department or unit in a classroom situation for a semester, and attend eight scheduled discussions arranged for all students in the seminar. These discussions will emphasize important topics related to college teaching. Exceptions may be made for the student who already has college teaching experience. In such cases, the student should enroll for two credit hours and attend the seminar discussion sessions only. Permission of instructor on "C" card is required.

Open to Graduate Students Only—Please refer to The Graduate College section for course description

700 Master’s Thesis
6 hrs.

710 Independent Research
2-6 hrs.

712 Professional Field Experience
2-12 hrs.
College of Fine Arts

ROBERT W. HOLMES,
Dean

Graduate Offerings
Art
Dance
Music
Open to Upperclassmen and Graduate Students

510 Advanced Drawing 3 hrs.
Drawing as the study of form and as a conclusive aesthetic statement. Prerequisite: ART 410 or equivalent experience. Repeatable for credit.

520 Independent Study in Art History 2-3 hrs.
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: ART 220, 221, and a 500-level course in the area of interest; permission of instructor. Repeatable for credit.

521 Topics in Art History: Variable Topics 3 hrs.
Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students. Repeatable for credit under a different title.

525 Seminar in Art 2 hrs.
Investigation and discussion in contemporary philosophies of art and their relationship to each student's work.

529 (530) Advanced Ceramics 3 hrs.
Advanced work in ceramics including glaze calculation.

530 Advanced Ceramics 3 hrs.
Advanced work in Ceramics on an independent basis. Prerequisite: ART 529 or equivalent experience. Repeatable for credit.

531 Sculpture 3 hrs.
Advanced work in sculpture. Continuation of ART 431. Emphasis on bronze and aluminum casting and related techniques. Prerequisites: ART 310, 431 or equivalent experience. Repeatable for credit.

534 Textiles 3 hrs.
Continuation of ART 434 with advanced work in textile design. Prerequisites: ART 234, 434 or equivalent experience. Repeatable for credit.

535 Multi-media Art 3 hrs.
Various forms of art that deviate from the conventional media, such as light, kinetic, and performance art. Prerequisite: ART 435 or permission of instructor. Repeatable for credit.

538 Jewelry 3 hrs.
Continuation of ART 438 with advanced work in jewelry processes. Prerequisite: ART 438 or equivalent experience. Repeatable for credit.
539 Metalsmithing  
This course provides an open opportunity to build metal objects of larger than jewelry scale. It offers technical instruction in moving, shaping, and forming non-ferrous metals by hammering. (Sterling, brass, copper, bronze, aluminum, pewter.) Prerequisite: ART 439 or equivalent experience.

540 Painting IV  
Advanced painting. Prerequisite: ART 410 (or concurrently), 440 or equivalent experience. Repeatable for credit.

541 Printmaking  
A continuation of Art 441. Prerequisite: ART 410 (or concurrently), 441 or equivalent experience. Repeatable for credit.

542 Watercolor  
Continuation of advanced water color techniques with emphasis on experimentation. Prerequisites: ART 240, 442 or equivalent experience. Repeatable for credit.

545 Graphic Design  
The fundamentals and procedures of graphic design for sequential, three-dimensional, and serial forms. Problems in design continuity and coordination are explored through editorial, corporate identity, campaign, product, and packaging design. Incorporates investigation of graphic processes and papers. Prerequisite: ART 445 or equivalent experience. Repeatable for credit.

552 (551) Preparation for Art Teaching  
A course designed to investigate the current problems and issues on the social scene which effect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); the phenomena of perceptual learning; the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Emphasis is placed upon developing professional viability. Prerequisites: ART 452, and art major status.

553 Independent Studies in Art Education  
An arranged elective course which would permit the student to investigate, in depth, research, a problem, a project, or trends in art education.

560 (650) Arts Education for the Elementary Teacher  
A studio course designed for the elementary classroom teacher to provide experiences in qualitative elementary art and integrated arts programming in the elementary public school. Repeatable for credit.

581 History of Ancient Art  
Selected topics from the art and architecture of ancient Egypt, the ancient Near East, the Aegean proto-Greek, Classical and Hellenistic Greece, Etruria and Rome to the Early Christian period. Prerequisite: ART 220 for Art majors and minors; none for other students.

583 History of Medieval Art  
Discussion of art and architecture from the decline of the Roman Empire
through the Gothic Period (3rd-13th cent.) Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

585 History of Renaissance Art 3 hrs.

The development of art through the early Renaissance to the late Renaissance and Mannerism. Some of the major artists discussed are: Giotto, Donatello, da Vinci, Michelangelo, Titian, Van Eyck, Breughel and Dürer. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

586 History of Baroque Art 3 hrs.

Art of the late sixteenth, seventeenth and early eighteenth centuries. Major artists and architects discussed are: Caravaggio, the Carracci, Rembrandt, Rubens, Poussin, Velasquez, Bernini, Borromini and Neumann. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

588 History of 19th Century Art 3 hrs.

Major developments, such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism, are discussed. Key figures whose works lie at the roots of modern art are considered in relationship to their times. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

589 History of 20th Century Art 3 hrs.

Major developments, including Fauvism, Cubism, Non-Objective art, Expressionism, Surrealism, Abstract Expressionism, and recent art movements, are discussed. Emphasis is placed upon the roots of contemporary trends and the contributions of individuals to new modes of presentation. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

590 History of Prints 3 hrs.

Major developments in printmaking, including origins of woodcut and engraving, Renaissance and baroque master etchers and engravers (Dürer and Rembrandt, etc.), Lithography in the nineteenth century (Delacroix, Daumier, Toulouse-Lautrec), Twentieth century printmaking. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

593 History of American Art 3 hrs.

Art in the United States from the Colonial Period to the present. Topics discussed are: Colonial portraiture, and Copley; the evolution of 19th and 20th century painting and sculpture, with emphasis on the work of Stuart, Cole, Bingham, Homer, Eakins, Ryder, Sullivan, Wright, Marin, Pollock and Smith. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

594 History of Afro-American Art 3 hrs.

Painting and sculpture in the United States by Americans of African ancestry from the Colonial period to the present. Includes examination of the African art background and the continuation of African art traditions and skills in America. Prerequisites: ART 220 and 221 for art majors; none for other students; Junior standing required.

596 History of Architecture 3 hrs.

A general introduction to the development of architectural styles including
European, Asian, and Pre-Columbian. Considers the evolution of styles and their cross-cultural relationships.

597 History of Modern Architecture  
Major developments in architecture since c. 1750 with emphasis on late 19th and 20th century developments in domestic and commercial architecture and city planning in the West and in Asia. Especial consideration given the works and influences of Wright, Le Corbusier, and van der Rohe.

Open to Graduate Students Only

610 Advanced Drawing  
1-6 hrs.  
Graduate level work in drawing. Prerequisite: ART 510. Repeatable for credit.

613 Graduating Presentation  
2 hrs.  
Preparation and presentation of graduating exhibition, portfolio, and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluated by a departmental reviewing committee. Prerequisite: Last year of graduate study.

620 Independent Study in Art History  
2-3 hrs.  
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: ART 220, 221 and a 500-level course in the area of interest; permission of instructor. Repeatable for credit.

625 Seminar in Art  
2 hrs.  
Investigation and discussion of contemporary philosophies of art and their relationship to each student’s work.

630 Advanced Ceramics  
1-6 hrs.  
Graduate level work in ceramics. Prerequisite: ART 530. Repeatable for credit.

631 Advanced Sculpture  
1-6 hrs.  
Graduate level work in sculpture. Prerequisite: ART 531. Repeatable for credit.

634 Advanced Textile Design  
1-6 hrs.  
Graduate level work in textile design. Prerequisite: ART 534. Repeatable for credit.

635 Advanced Multi-Media Art  
1-6 hrs.  
Graduate level work in Multi-Media Art. Prerequisite: ART 535. Repeatable for credit.

638 Advanced Jewelry  
1-6 hrs.  
Graduate level work in jewelry. Prerequisite: ART 538. Repeatable for credit.

640 Advanced Painting  
1-6 hrs.  
Graduate level work in painting. Prerequisite: ART 540. Repeatable for credit.
College of Fine Arts

641 Advanced Printmaking 1-6 hrs.
Graduate level work in printmaking. Prerequisite: ART 541. Repeatable for credit.

642 Advanced Watercolor 1-6 hrs.
Graduate level work in watercolor. Prerequisite: ART 542. Repeatable for credit.

645 Advanced Graphic Design 1-6 hrs.
Graduate level work in graphic design. Prerequisite: ART 545. Repeatable for credit.

655 Workshop in Art for Secondary Teachers 2 hrs.
A course designed to help the secondary teacher with no professional training in art or art education to better understand the child at this level and to help him in his creative mental growth through art activities.

656 Seminar in Elementary Art Education 1 hr.
A seminar oriented to the explicit needs and interest of the student enrolled. It will examine particular issues pertinent to the teaching of art in the elementary school.

657 Seminar in Secondary Art Education 1 hr.
A seminar oriented to the explicit needs and interests of the students enrolled. It will examine particular issues pertinent to the teaching of art in the secondary school.

658 Art Education Research 1-6 hrs.
To examine historical and contemporary philosophies in art education in order to familiarize the student with current methods of research in the field. Whenever appropriate, opportunity will be given students to do pilot research in an area of their own needs and interests. Repeatable for credit.

659 Advanced Art Education 3 hrs.
An examination of some of the unique aspects of teaching art in the public schools. New materials, special and general materials sources, bibliographic resources and related references are gathered and explored. Field trips will be developed to expose students to potential community resources in art. and discussions will examine current literature, trends and techniques in art education. (A lecture-lab)

660 Related Arts Methods 3 hrs.
A course that explores the art teacher's role in contemporary and experimental procedures in the teaching of the arts in the public schools. Some factors to be examined are: team teaching, team learning and planning. Audio-visual/video support, the individual school situation and its personnel.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

258
Dance (DANC)

Hetherington, Chairman; Associate Professors Gamble, Stillwell; Assistant Professors Cornish, McCray

Open to Upperclassmen and Graduate Students

500 Dance History and Philosophy 3 hrs.
The history of dance through the philosophies of man from primitive cultures to the contemporary concert dancer.

523 Advanced Contemporary Dance 3 hrs.
The advanced study of contemporary dance technique designed for the dance student seeking the greatest proficiency and versatility in this dance form.

528 Musical Theatre Workshop 3 hrs.
Designed for students from dance, music and theatre orientations who wish to learn about the concepts, methods, techniques, organizational and communicational approaches useful to creatively effective production of musical theatre. An understanding of the integration of dance, music and theatre elements is provided through lectures, discussions, demonstrations, and student-directed scenes from musical theatre pieces. Course is team taught by faculty members from the departments of Dance, Music and Theatre area of Communication Arts and Sciences. Prerequisite: DANC 182 and 328 or permission of the instructor.

548 (PEW 586) Dance and the Related Arts 3 hrs.
Related study of cross-sections of art discipline at various points in the historical development of man. Assumes prior knowledge of historical and philosophical development of at least one of the disciplines.

582 Advanced Choreography 3 hrs.
A non-literal approach to design in dance through the study of varied use of time, space and force in solo and group choreography. Prerequisite: DANC 182 or permission of instructor.

588 Staged Productions 3 hrs.
Study of the production aspects of dance and related types of performance situations. Aspects of management including budget, publicity, and programming as well as technical aspects of scenery, lighting, sound, costuming and make-up is considered.

598 Readings in Dance 1-3 hrs.
Graduate students may enroll in this course after consultation with graduate adviser.
College of Fine Arts

599 Non-Reading Independent Study in Dance 1-3 hrs.

Graduate students may enroll in this course after consultation with graduate adviser.

Open to Graduate Students Only

640 Rhythms in Elementary Education 2 hrs.

A study of the rhythmic movement needs of the elementary school child, including: suggested methods of teaching through which children are stimulated to create their own responses in rhythmic play; folk and social dancing as outgrowths of movement fundamentals; and teaching examples, sample lesson plans, and up-to-date reference sources. Lecture and activity periods.

680 Advanced Studies in Dance 1-3 hrs.

Consultation with Graduate Adviser.

Music (MUS)

Fink, Chairman; Professors Butler, Carter, Faustman, Holmes, Kyser, Meretta, Sanders; Associate Professors Appel, Balkin, Bjerregaard, Bullock, Butler, Hahnenberg, Hardie, Humiston, Osborne, Rappaport, Ricci, Ryan, Sheldon, Work, Zastrow; Assistant Professors Allgood, Boucher, Edmonson, Smith, Whaley, Zupko

Open to Upperclassmen and Graduate Students

517 Collegium Musicum 1 hr.

Performance of early Western Music. Open to all students of the University. Required of Music History majors. Additional transcription, arranging, editing, and conducting of early music is required of Music History majors. Graduate students may count not more than two hours of this course for graduation. Membership by audition.

518 Improvisation 2 hrs.

A course in the fundamentals of instrumental improvisation. Assignments will be made in such areas as improvisation in the early music tradition, improvisation on given melodic, harmonic, and/or rhythmic materials, as well as “free” improvisations. Prerequisite: MUS 161 or 165.

530 Advanced Choral Conducting 2 hrs.

Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance. Prerequisite: MUS 330.

531 Advanced Instrumental Conducting 2 hrs.

Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: MUS 331.

540 Elementary School Music 2 hrs.

Emphasizes the place of music in the curriculum and the use of music in the day-to-day activities in the classroom. The fundamental musical skills are developed in order to assist the teacher to achieve these objectives.
541 Music Supervision and Consultation  
2 hrs.
A study of the structuring and implementation of a music education program in the schools, in terms of three organizational relationships: the music administrator or supervisor, the scheduled music teacher, and the unscheduled music consultant. Relation of music specialist to classroom teacher.

542 Studies in Music Education  
2 hrs.
Topic to be announced. Selection will be made from the following or similar topics: Music in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated to an accumulation of not more than four credits.

543 Psychology of Music Education  
2 hrs.
Personal and social needs, motives, and goals in relation to music in education. The function of musical achievement and aptitude tests in music education. Psychological aspects of behavior pattern in musical organizations. Physical, social, and psychological factors involved in developmental music program.

544 Analysis and Evaluation of Music Education Materials  
2 hrs.
A study of the theoretical bases for, and practice in, analyzing and evaluating music for use in music education programs.

562 Advanced Composition  
2 hrs.
A study of twentieth century techniques in composition with original work in vocal and instrumental forms. Prerequisite: MUS 460 or 660.

563 Advanced Composition  
2 hrs.
A continuation of MUS 562.

570 Introduction to Musicology  
3 hrs.
History, purposes, scope of musicology; leading historians, past and present; modern methods of research, with special emphasis on primary sources and bibliography of the field.

571 Introduction to Musicology  
3 hrs.
A continuation of MUS 570.

572 Baroque Music (1600—1750)  
2 hrs.
A survey of the choral and instrumental music of the Baroque masters such as J. S. Bach and G. F. Handel. Special attention to the development of style from monody through harmonic polyphony. Prerequisites: MUS 270 and 271.

573 Classical Music (1750—1800)  
2 hrs.
Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classic opera. Prerequisites: MUS 270 and 271.

574 Romantic Music (1800—1910)  
2 hrs.
Music of the important composers of the period beginning with Beethoven, along with the historical, cultural, and political background of the era. Special
attention is given to the development of Nationalism. Prerequisites: MUS 270 and 271.

575 Musicology and Research 2 hrs.
Presentation of musicological material in formal writing as well as informal classroom lecture; specific research projects with emphasis on selection and qualitative judgment of materials used.

576 Musicology and Research 2 hrs.
A continuation of MUS 575.

577 Symphonic Literature 2 hrs.
A survey of music written for symphony orchestra during the Classic and Romantic periods.

578 Chamber Music Literature 2 hrs.
A survey of chamber music literature of the Classic and Romantic periods.

579 Operatic Literature 2 hrs.
A survey of opera from 1600 to the present.

580 Solo Literature: (topics) 2 hrs.
Solo literature for a specific medium (voice, piano, violin, etc.) will be studied from a theoretical, historical, and performance point of view. Topics to be announced. May be repeated for credit. Prerequisite: MUS 270-271.

590 Studies in Pedagogy 1-3 hrs.
Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit.

598 Readings in Music 1-4 hrs.
Graduate students may enroll in this course after consultation with the graduate adviser.

Open to Graduate Students Only

617 Opera Workshop 2 hrs.
A production experience in acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.

Topics will be chosen from the following: Eighteenth Century, Nineteenth Century, Twentieth Century, and selected Chamber Literature. The course may be repeated for credit. Prerequisite: Admission to the Applied String curriculum or permission of the instructor.
Music

640 Band Techniques and Organization 2 hrs.

641 Choral Techniques and Organization 2 hrs.
The study of choral activities in relation to organization, repertoire, style, diction, singing technique, balance, blend, tone quality, phrasing, rehearsal technique, and conducting.

642 Philosophy and History of Music Education 2 hrs.
Designed to acquaint the student with the development of music education in the United States and how this development is a reflection of a growing philosophy of music education.

650 Seminar in Music Education 2 hrs.
Each participant will be expected to develop a project which is of interest to him, but each project will be subject to group discussion, review, and analysis. The lectures and reading will deal with the entire field of music education.

658 Techniques of Research in Music Education 2 hrs.
Available research in music education will be analyzed as to method and technique. Outlines will be submitted for proposed studies involving the techniques thus discovered, and one will be developed.

659 The Teaching of Applied Music (on demand) 2 hrs.
Survey of teaching problems involved in music of various periods and styles. Critical analysis of performances in student's major performance medium, as well as other media, will be required. Pedagogical problems of teaching both secondary and university age level students will be considered.

660 Advanced Counterpoint 2 hrs.
Contrapuntal techniques of the 16th, 17th, 18th, 19th, and 20th centuries. Written assignments closely correlated with analysis of the contrapuntal styles of significant composers of the above eras.

661 Advanced Counterpoint 2 hrs.
A continuation of MUS 660.

662 Seminar in Composition 2 hrs.
An intense study of various compositional styles with emphasis on the techniques of the composers of the Renaissance, Baroque, Classical, Romantic and Contemporary areas. Assigned individual research and analysis. May be repeated for credit to a total of not more than 4 hours.

664 Form in Music 2 hrs.
A survey of the musical forms, large and small, used from the Baroque period to the present day. Analysis of both structure and texture of representative works of the various periods and styles.
College of Fine Arts

665 Band Arranging 2 hrs.
Instruction in scoring for small wind instrument ensembles and the band. Opportunity will be provided to hear the results of each student's work.

666 The Teaching of Theory (on demand) 2 hrs.
Analysis of various techniques, philosophies, and materials used in teaching theory and their relative strengths and weaknesses. Application of what we know about the learning processes to theory and the practical application of theory to all musical study.

667 Advanced Orchestration 2 hrs.
Scoring project for full orchestra and chorus, solo and orchestra and full orchestra. Analysis of the orchestral techniques of important 20th-century composers. Projects employing the orchestral techniques of the avant-garde.

668 Advanced Orchestration 2 hrs.
A continuation of MUS 667.

670 Seminar in Musicology 1 hr.
Research projects from all areas of the history of music. Each student will present his findings both as a formally written paper and as a seminar report. Emphasis will be placed on writing style, manner of presentation, scholarship, and validity of conclusions.

671 Seminar in Musicology 1 hr.
A continuation of MUS 670.

672 Medieval Music 3 hrs.
The history of music in Western Europe from Gregorian Chant through the 14th century. Special attention will be given to problems of musical notation and how they relate to musical style. Projects will involve the transcription of music from older notational systems to modern notation.

673 Renaissance Music 3 hrs.
The history of music in Western Europe during the 15th and 16th centuries. Special attention will be given to problems of musical notation and how they relate to musical style. Projects will involve the transcription of music from older notational systems to modern notation.

677 Contemporary Music 2 hrs.
A survey of trends in European music and music of the Americas from about 1910 to the present day.

679 Composers 2 hrs.
An investigation of the life and works of a significant composer. The particular composer selected for study during a given semester will be indicated in the schedule of classes. The course may be retaken for credit when dealing with a different composer.
690 Graduate Recital 2 hrs.
Presentation of a full-length recital in the student's area of concentration (applied music or composition). This course also requires an appropriate document relative to the repertoire performed. The course is evaluated by the faculty teaching in that area. Prerequisite: By consent of instructor.

691 Special Project in Music Education 2 hrs.
A research project designed as one alternative for the culmination of Master of Music – Music Education degree. The nature of the special project is to be determined in consultation with the graduate adviser. Consent of graduate adviser required. May be repeated for credit to a total of not more than six hours.

Private Music Study – Open to Graduate Students Only

500 Applied Music 1-2 hrs.
Graduate students who are not majoring in applied music and who do not meet graduate performance level may register for this course. May be repeated for a total of not more than three credit hours.

600 Applied Music 1-4 hrs.
Qualified graduate students may study in applied music for a total of four semester hours per semester in the major performance area. Requires 60 minutes per week of instruction and necessary practice. May be repeated for credit.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.
The Graduate College

GEORGE G. MALLINSON,
Dean

RICHARD T. BURKE,
Associate Dean

SID DYKSTRA,
Associate Dean

Graduate Offerings:
Graduate Studies
Higher Education
Librarianship
A graduate student should register for 700-level courses in his or her instructor's department. If the appropriate 700-level course is not offered by that department, he or she should seek permission to register for it as a Graduate College (GRAD) course. Beginning with the Fall Semester 1973, all 700-level courses will be graded on a credit-no credit basis.

700 Master's Thesis 6 hrs.
Candidates for the Master's degree may elect to write a thesis in their field of specialization under the supervision of a thesis committee. A student may elect this course in two units of from two to six hours. The election should not be made in more than two units and must be made within a calendar year. Application forms must be submitted prior to the election of the thesis. The "Specifications for Masters' Theses, Specialist Projects, and Doctors' Dissertations" is available in the bookstore.

710 Independent Research 2-6 hrs.
Designed for highly qualified advanced graduate students, or small groups, who wish to pursue individual studies or projects under the direction of a member of the graduate faculty. May be elected in any department or division with permission of The Graduate College, the student's graduate adviser and the faculty member under whom the student desires to work. Applications must be submitted prior to the election of the course.

712 Professional Field Experience 2-12 hrs.
Designed for superior graduate students who wish to pursue internships or apprenticeships in off-campus activities in industries or institutions. May be elected in any department or division with permission of the student’s graduate adviser, a faculty sponsor and The Graduate College. Prerequisite: An outline of the purposes of the student's internship or apprenticeship. Application forms, guidelines, and information about established programs may be obtained at The Graduate Office. Applications must be submitted prior to the election of the course.

720 Specialist Project 2-6 hrs.
Designed for those units offering the Specialist degree. The nature of the study, project or paper will vary from one program to another. After receiving unit approval, the original and two copies of the project reports of papers must be prepared for binding and submitted to The Graduate College for acceptance. The “Specifications for Masters’ Theses, Specialist Projects, and Doctors’ Dissertations” is available in the bookstore. Application forms must be submitted prior to election of the project.

725 Doctoral Research Seminar 2-6 hrs.
Units offering doctoral programs may use this number to designate their research seminars. Such seminars may be taken more than once by the student. Permission of instructor on “C” card is required.

730 Doctoral Dissertation 15 hrs.
The doctoral dissertation must reflect a creative effort on the part of the
student in using the skills of inquiry appropriate for his discipline. The acceptance of the dissertation requires unanimous approval of the dissertation review committee and acceptance by The Graduate College. The original copy after acceptance will be used for microfilming by University Microfilm, Inc. at the student’s expense. The student will retain the rights for further publication. The “Specifications for Masters’ Theses, Specialist Projects, and Doctors’ Dissertations” is available in the bookstore. Application forms must be submitted prior to election of the dissertation.

735 Graduate Research 2-10 hrs.

Units offering doctoral programs may use this number to designate research projects for their doctoral students. Such projects may be taken more than once by the student. Permission of instructor on “C” card is required.

Higher Education

In various University graduate curricula there are several courses offered with content directed primarily to those individuals preparing themselves for teaching, administration, or service areas in Higher Education. These courses are listed below. For further information contact the Chairman of the Committee on Higher Education, Dr. L. Dale Faunce, Professor, Counseling and Personnel.

Business Education and Administrative Services

600 Seminar in Business Education and Administrative Services 3-4 hrs.
687 Post-Secondary Business Education 2 hrs.

Counseling and Personnel

612 Student Personnel and Counseling in Higher Education 3 hrs.
624 Research in Counseling and Personnel 3 hrs.
630 Studies in Higher Education 2-6 hrs.
686 Topical Seminar in Counseling and Personnel 2-4 hrs.

Educational Leadership

660 Administration and Supervision 2-4 hrs.
662 Concept Formation 2-4 hrs.

Sociology

695 College Teaching Practicum in Sociology 3 hrs.
696 Supervised College Teaching in Sociology 1 hr.

Teacher Education

650 The Characteristics of the College Student 2 hrs.
690 The Community College 2 hrs.
699 Seminar in College Teaching 2 or 4 hrs.
Librarianship (LIB)
Lowrie, Director; Professor Grotzinger; Associate Professors Baechtold, Comaromi, McKinney; Assistant Professors Ballard, Berneis, Carroll, Cohen, Edwards, Gillham, Miller, Smith

Open to Upperclassmen and Graduate Students

506 Introduction to Computers 1 hr.
Flow charts and computer programs will be prepared in the BASIC LANGUAGE to be run on the digital computer. Prerequisite: 1-1/2 yrs. high school algebra or MATH 100.

510 Building Library Collections 3 hrs.

512 Reference Service 3 hrs.
Introduction to a variety of materials which can serve as sources of reference and bibliographic information. Critical examination and evaluation of reference materials is a basic emphasis. Attention is to organization and methods of reference services in libraries. Open to students outside the program.

530 Introduction to Classification and Cataloging 3 hrs.
Introduction to basic cataloging and classifying principles and procedures. Includes theoretical study and practical application of descriptive cataloging, rules for determining main and secondary entries, subject cataloging, and classifying according to the Dewey Decimal Classification scheme. Processing non-book materials and the development, use and maintenance of library catalogs are included. Laboratory experience is required.

542 Reading Interests of Young Adults 3 hrs.
Study of the fields of literature suited to the interests of young people. Students are given opportunity through wide reading to develop principles and standards for the selection of the book collection. Includes an introduction to methods of stimulating border reading interests and conducting group book discussions with young people. Open to students outside the program.

546 Storytelling 3 hrs.
Underlying principles of the art of storytelling as a means of developing appreciation of literature and stimulating an interest in reading. Includes content and sources of materials, techniques and practice in telling stories before groups of children and planning the story hour program. Open to students outside the program.

598 Readings in Librarianship 1-3 hrs.
Offers a program for the advanced student for independent study in his special area of interest; arranged in consultation with a graduate adviser. Prerequisite: Written permission of instructor.

270
Librarianship

Open to Graduate Students Only

600 Libraries and Librarianship 3 hrs.
Gives the student professional background through study of the historical development of the library, European and American; the function of the modern library and its contributions to society; current trends in librarianship and current library literature.

602 History of Books and Printing 3 hrs.
Study of the development of the book from the earliest period to modern times. Considers the appraisal of the physical book as well as its relationship to social and cultural developments. Includes history of the alphabet, early writing materials, manuscripts, inventions and spread of painting and evolution of book production. Open to students outside the program.

607 Library Experience 2-3 hrs.
An introduction to library activities and services through assignment to a selected library. For each credit hour received, 35 hours of supervised library experience are required. May be taken only with permission of the student’s graduate adviser, and when an appropriate situation is available. Graded on the credit-no credit system.

612 Subject Bibliography: The Humanities and Social Sciences 3 hrs.
A study of specialized reference tools and bibliographical sources in the social sciences and the humanities. Each student will be expected to study and report on the literature and bibliographical development of a topic of his choice. Prerequisite: LIB 512 or equivalent. 612 need not precede 613.

613 Subject Bibliography: The Sciences 3 hrs.
A study and evaluation of representative bibliographical and reference tools in the physical, biological and applied sciences. Emphasis on factors related to scientific reference service and search strategy. Prerequisite: LIB 512 or equivalent.

614 Government Publications 3 hrs.
Study of city, state and federal documents and those of selected international agencies such as the United Nations. Problems of acquisition, organization and use of such collections in various types of libraries.

616 Materials and Methods for School Media Programs, K-12 3 hrs.
Cooperative role of media specialists, teachers and other school personnel in evaluation, selection and utilization of media appropriate to the instructional program. Oral and written critical analysis of print and non-print materials combined with effective ways of working in all types of organizational patterns. Open to students outside the program.

617 Reading Guidance for Children 3 hrs.
A study of the development of children’s literature from approximately the 8th century in England and the Colonial period in the United States to the present time. Includes principles and techniques in guidance of children’s reading interests and evaluation of current literature. Open to students outside the program.
618 Libraries and Multi-Sensory Communication Media 3 hrs.

A study of modern multi-sensory aids employed in communicating ideas and considered in relation to their effect on libraries. Emphasis will be placed on program development through effective use of multi-media materials. Mass communications media and new instructional methods for fulfilling the objectives of public, school and college libraries will be examined.

620 Public Library Service 3 hrs.

Origin and development, purposes and functions of the tax-supported public library (county and regional) in a democracy. Relation to other educational units in the community; distinctive problems and practices in public library organization and administration. Prerequisite: LIB 622 or equivalent.

622 Library Administration and Management 4 hrs.

An introduction to administrative theory and the principles of management as they relate to the overall development, implementation and evaluation of library service and organization. General sessions plus small group instruction provide an opportunity to examine application of the above principles in public, academic, school and special library situations.

623 College and University Library Service 3 hrs.

College and university library organization and administration, and the place of the library in academic institutions; effectiveness of library procedures; problems of acquisition, finance, buildings, equipment and the handling of special materials. Prerequisite: LIB 622.

624 Library Service to Children and Youth 3 hrs.

The function and administration of public library service for children and young adults. Emphasis on coordination with school libraries and other community agencies; programs development in children’s and youth adult departments.

625 School Library Administration 3 hrs.

Consideration of the library as the media center of the school at the elementary and secondary levels. Emphasis on the program of services to faculty and students, including the administrative problems of budget planning, personnel requirements, space and equipment needs and library instruction.

627 Administration of the School Media Center 3 hrs.

A seminar approach to contemporary issues including staff utilization, in-service programs for teachers, current trends in education and school media systems development. Prerequisite: LIB 625 or written permission of instructor.

628 Survey of Special Libraries 3 hrs.

Development of specialized library services to organizations in such fields as science and technology, fine arts, business, etc. Lectures and field trips.

629 Library Research 3 hrs.

Introduction to basic techniques of research methodology: descriptive, historical and experimental. Includes critical evaluation of library studies and their influence on library organization, administration and services. Opportunity for in-
vestigation and analysis of current problems in public, college, school, and special libraries. Prerequisite: Written permission of instructor.

630 Advanced Classification and Cataloging 3 hrs.
A continuation of Introduction to Classification and Cataloging 530. Attention is given to the Library of Congress Classification, to the history of cataloging, to current practice in the United States, and to the internal methods and economics of technical processing departments. Prerequisite: LIB 530 or equivalent.

631 Technical Services for School Media Centers 3 hrs.
Organization and objectives of the school processing center. Theory and application of the Dewey Decimal classification and other techniques in the organization of book and non-book materials. Special emphasis on technical services administration in individual libraries and systems with centralized processing. Prerequisite: LIB 530 or equivalent.

632 Technical Services Seminar 3 hrs.
Seminar in current trends in technical services. Includes the application and adaptation of basic cataloging and classification to specialized collections. Prerequisites: LIB 530, 630, or permission of instructor.

634 Data Processing for Libraries 3 hrs.
A survey, analysis, history, and evaluation of the uses of data processing equipment for the performance of operations in all kinds of libraries. Includes experience in analysis by flow-charting and in designing mechanization of a library task.

635 Information Storage and Retrieval 3 hrs.
Design of information storage and retrieval systems, with emphasis on automated aspects. Includes consideration of characteristics of media used for the storage of information and indexing and bibliographical control procedures used in retrieval systems, with emphasis on non-traditional methods. Trends and developments in modern information technology and methods of information dissemination are considered.

636 Introduction to Abstracting and Indexing 3 hrs.
A seminar approach to the problems of bibliographical control and the production of copy for secondary publications. Attention is given to indexing with controlled and uncontrolled vocabularies, book indexing, thesaurus construction, classification, and automated language processing. Practical experience is given in preparing abstracts and indexes from source documents.

644 Adult Reading Interests 3 hrs.
Evaluation of findings of reading studies and their implications for library service; an understanding of reading habits, abilities and needs of adults. Study of the library as an adult education agency with an introduction to leadership training and adult education techniques.

645 Library Service to the Disadvantaged Child 3 hrs.
The study of socially and educationally deprived children in the urban, rural,
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and migrant communities and the relationship of library services to them through cooperative program planning between public and school libraries and observation and field experience in existing library and non-library community programs.

650  Advanced Seminar in Librarianship  
2-4 hrs.
Analysis and study of specific problems in contemporary library practice. Lectures, field trips and resource consultants. Offered irregularly.

652  Seminar in International Librarianship  
3 hrs.
Opportunity to study the development, current status, and needs of library service at the international level in all types of libraries.

655  Seminar in Library Education  
3 hrs.
Designed for the advanced student interested in teaching in the field. Includes historical development, comparative librarianship, relationship of professional school in higher education, program and course analysis, and areas of research. Offered irregularly.

690  Studies in Librarianship  
1-6 hrs.
Examines selected topics within the field of library science. Organization of course and topics considered will be determined in consultation with the graduate adviser.

Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions

700  Master’s Thesis  
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710  Independent Research  
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712  Professional Field Experience  
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720  Specialist Project  
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