THE GRADUATE COLLEGE

The provisions of this catalog are not an irrevocable contract between the student and the University. The University reserves the right to change any provision or requirement at any time within the student's attendance. The University further reserves the right to ask the student to withdraw for cause at any time.

It is the policy of Western Michigan University not to discriminate on the basis of race, sex, age, color, national origin, religion or handicap in its educational programs, activities, admissions or employment policies as required by Title IX of the 1972 Educational Amendments, Executive Order 11246 and Executive Order 11375.
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## Spring Session

- **Final Registration**: April 29, 1978
- **Classes Begin**: May 1, 1978
- **Final Day to Add Classes**: May 1, 1978
- **Final Day to Drop Classes**: May 1, 1978
- **Applications for Admission to Graduate College**: May 1, 1978
- **Diploma Applications Due for August Commencement**: June 1, 1978
- **Memorial Day Recess**: May 29, 1978
- **Session Ends**: June 21, 1978
- **Approved Theses, Projects, and Dissertations Due in Graduate Office for Summer Commencement**: August 4, 1978

## Summer Session

- **Final Registration**: June 27, 1978
- **Classes Begin**: June 28, 1978
- **Applications for Admission to Graduate College**: July 1, 1978
- **Final Day to Add Classes**: July 3-4, 1978
- **Final Day to Drop Classes**: July 3-4, 1978
- **Independence Day Recess**: August 4, 1978
- **Session Ends**: August 18, 1978
- **Commencement**: August 18, 1978

## Fall Semester

- **Final Registration**: August 26, 1978
- **Classes Begin**: *August 28, 1978*
- **Final Day to Add Classes**: See Class Schedule
- **Final Day to Drop Classes**: See Class Schedule
- **Diploma Applications Due for December Commencement**: October 1, 1978
- **Classes Dismissed at 2 P.M. Friday only (Laboratories excepted)**: October 1, 1978
- **Homecoming**: October 20, 1978
- **Applications for Admission to Graduate College**: November 1, 1978
- **Thanksgiving Day Recess Begins at Noon**: November 22, 1978
- **Classes Resume**: November 27, 1978
- **Approved Theses, Projects, and Dissertations Due in Graduate Office for Fall Commencement**: December 1, 1978
- **Semester Ends**: December 16, 1978
- **Commencement**: December 16, 1978

* Labor Day Recess—Sept. 4, 1978
Winter Semester
Final Registration
Classes Begin
Final Day to Add Classes
Final Day to Drop Classes
Diploma Applications Due for April Commencement
Applications for Fellowships and Associateships
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Classes Resume
Approved Theses, Projects, and Dissertations Due in Graduate Office for Winter Commencement
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March 1, 1979
March 5, 1979
March 12, 1979
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1980
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January 3, 1980
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April 4, 1980
April 5, 1980
April 4, 1980
April 19, 1980
April 21, 1980

1981
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January 5, 1981
See Class Schedule
February 1, 1981
February 15, 1981
March 1, 1981
March 2, 1981
March 9, 1981
April 17, 1981
April 18, 1981
April 10, 1981
April 25, 1981
April 25, 1981

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December 31, 1984
December 31, 1984
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THE UNIVERSITY AND GRADUATE 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 graduate programs in the Colleges of Applied Sciences, Arts and Sciences, Business, Education, Fine Arts, and Health and Human Services, as well as in the Schools of Librarianship and Social Work. The University’s enrollment for Fall, 1977, was 20,810, with 3,767 enrolled in seventy-eight 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 sixty-two master’s degree programs. Master of Arts degrees are awarded in twenty-five programs in the following general categories within the College of Education: Audiovisual Media, Counseling and Personnel, Curricula in Teaching Elementary Education, Educational Leadership, Physical Education, Reading, Special Education, Teaching in the Community College, Teaching the Economically and Educationally Disadvantaged, Teaching in the Elementary School, and Teaching in the Middle or Junior High School. Nineteen other educational programs at Western also lead to the Master of Arts degree: Anthropology, Art, Biology, Chemistry, Communication Arts and Sciences, Dance, Economics, English, Geography, History, Home Economics, Modern and Classical Languages, Mathematics, Medieval Studies, Physics, Political Science, Psychology, School Psychology, Sociology, and Speech Pathology and Audiology. The University also offers the Master of Science degree in Accountancy, Applied Statistics, Biomedical Sciences, Biostatistics, Business, Computer Science, Earth Science, Geology, Librarianship, Operations Research, Paper Science and Engineering, and Technology, as well as the Master of Business Administration, Master of Fine Arts, Master of Music, Master of Occupational Therapy, Master of Public Administration, and Master of Social Work degrees.

In 1960 programs leading to the Specialist in Education degree were introduced. This degree is offered in Educational Leadership, Counseling and Personnel, Special Education, and School Psychology. In addition, the University offers Specialist in Arts degrees in Business Education, History, Librarianship, Mathematics, and Science Education.

Doctoral programs were initiated in 1966 and were fully accredited by the North Central Association in 1971. Western Michigan University offers doctoral programs in eight areas. The Doctor of Education degree is offered in Educational Leadership, Counseling and Personnel, and Special Education; the Doctor of Philosophy degree is offered in Chemistry, Mathematics, Sociology, Science Education, and Psychology.

SECTION I

General Policies And Procedures

ADMISSION DATES

Admission to The Graduate College is required of each student planning to secure a degree beyond the baccalaureate. Applications for admission should be submitted by the following dates:

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

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

Since applications are considered on a first-come, first-served basis, it is advisable to apply well before these deadlines because admission to some programs is closed when all openings are filled. Also, some programs require the results of entrance examinations which are scheduled in advance of these deadlines.

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

A graduate student who no longer has active admission status 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 each application for admission to The Graduate College.

ADMISSION PROCEDURES

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

1. Request an “Application for Admission” from The Graduate College.
2. Determine from The Graduate College Bulletin the degree sought and the curriculum to be studied.
3. Return the “Application for Admission” and the $10 application fee before the published admission dates.
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 published admission dates.

TYPES OF ADMISSION

The admission of students to all graduate programs is a two-step process. The first step involves admission to The Graduate College; the second involves admission into a program by a department or unit. Both steps must be taken before admission is granted; one step alone does not lead to admission. This process is followed by a student acquiring regular degree admission or probationary non-degree admission.

1. Regular admission - Degree status
   a. Admission is granted 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 or she plans to pursue. Acceptance to a definite program of study leading to a degree is dependent upon the approval of the department or unit in which the student plans to study. For further information see the admission requirements of that graduate program.
   b. Admission with reservation is granted to the student who has fulfilled the general requirements for admission but may not have fulfilled the specific requirements of a particular program. Such admission is also granted to the student during the final semester or session of enrollment in an undergraduate program if the academic record is satisfactory.
   c. Dual enrollment admission is granted to the senior at Western Michigan University who has an acceptable academic record, who has applied for graduation, and who has no more than six credits to complete for a bachelor’s degree. 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. A student must request dual enrollment status on the application for regular admission to a degree program.

2. Probationary admission - Non-degree status
   Probationary admission on non-degree status is granted to the student with a somewhat less than satisfactory academic record or anyone having a bachelor’s degree from a non-accredited college. A point-hour ratio of at least 2.3 in the final two years of undergraduate study, as well as the approval of the department or unit in which he or she plans to pursue graduate study is required for probationary admission. A student admitted on non-degree status may establish eligibility for regular admission to a degree program by completing the specified departmental prerequisites, by securing grades of "B" or better in the first six graduate credits, by passing the English Qualifying Examination, and by securing departmental approval. No assurance can be given to a student with non-degree status that any credits earned will be accepted in a degree program or used to meet the requirements for graduation.
PERMISSION TO TAKE CLASSES

A student with a bachelor's degree who wishes to enroll in courses, but does not plan to pursue a program leading to a graduate degree, or is not eligible for admission, may enroll in certain classes with Permission to Take Classes (PTC) status. This status also is granted to a student enrolled in a certificate program and to a guest or visiting student from another university. PTC status does not constitute admission to The Graduate College, and the courses taken under this status might not apply to a particular degree program. For the student eligible for admission, a maximum of nine credits taken under PTC status may be considered in any degree program if he or she should later decide to apply for admission to a program of study leading to a graduate degree. Dual enrollment is not open to students on PTC status.

ADMISSION OF FOREIGN STUDENTS

A foreign student with a degree from an institution in the United States will be expected to meet the same academic standards required of U.S. citizens for degree admission. Additionally, all foreign applicants must establish that they have the financial capacity to cover the educational and living expenses which are incurred by a typical non-resident graduate student. Foreign student applicants who present educational backgrounds which have been acquired in another country must also meet the minimum admission standards established by The Graduate College as determined by the Office of International Student Services (OISS). And, when the first or primary language of a foreign applicant is other than English, the applicant will be required to demonstrate his or her competence in English. Those non-native speakers of English who have successfully completed at least one year of full-time academic study at another accredited U.S. institution will be presumed adequately proficient in English to undertake full-time graduate study at Western. Other non-native speakers must demonstrate their English competence by submitting the results of a recognized English proficiency test. The University generally accepts scores from the Test of English as a Foreign Language (TOEFL) and the Michigan Test of English Language Proficiency (MTELP) as a basis for determining English language competence (see section on Office of International Student Services for specific score requirements).

The applications of prospective foreign graduate students whose qualifications meet the minimum admission standards of The Graduate College and the OISS will be referred to the academic department in which the student hopes to study for further consideration. Foreign students wishing to apply for admission to Western may secure an application from the OISS.

SENIOR CITIZEN STATUS

A special status for persons 62 years of age or older has been approved by the Board of Trustees providing senior citizens with special privileges and opportunities for study at Western Michigan University. Individuals qualifying for Senior Citizen status should seek Permission to Take Classes status prior to the final day of registration. The permit to register for those requesting this status will be labelled Senior Citizen and will enable the student to enroll in courses without charge on the final day of registration.

Such students will be issued an ID entitling them to the use of libraries and other academic facilities. The ID, however, does not make available to the student the use of non-academic facilities such as Health Services.

ELIGIBILITY OF FACULTY FOR GRADUATE STUDY

Western Michigan University faculty members who hold continuing appointments at the rank of instructor or above may not earn a doctoral degree at Western Michigan University. This restriction also applies to administrative personnel with classifications of Grade 13 and above. Faculty and all administrative personnel are eligible to apply for admission to master's and specialist degree programs, but only in academic departments or schools where they are not employed.

MICHIGAN INTERCOLLEGIATE GRADUATE STUDIES (MIGS)

The Michigan Intercollegiate Graduate Studies (MIGS) program is a guest scholar program which enables graduate students of Michigan public institutions offering graduate degree programs to take advantage of unique educational opportunities on the campuses of the other institutions. Western Michigan University participates in this program.

Any graduate student in good standing in a master's, specialist, or doctoral program at a participating institution is eligible to participate. The student's good standing at the home institution affords the opportunity to study at the host institution, providing the proposed program of study is approved by a departmental officer and MIGS liaison officer at both the home and host institutions. The officers of the home institution determine whether the experiences sought are unique or not available at the home institution; the officers of the host institution determine whether space and other necessary resources are available at the host institution. This type of enrollment is limited to one term for master's or specialist degree students, or two terms for doctoral degree students. For further information, contact a graduate adviser or the MIGS liaison officer in The Graduate College.

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 or her choice. Students are encouraged to register during the advance 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 not withdraw from graduate courses beyond the midpoint of each semester or session.

STUDENT LOAD

The maximum number of semester hours that may be elected by a full-time graduate student is fifteen in a semester and eight in a session. Any enrollment in excess of these maximums must be made with the written approval of the student's graduate adviser and be reviewed by The Graduate College. The normal full-time load for a graduate student during the Fall and Winter semesters is three or four courses (9-12 hrs.), and for doctoral degree students, or two terms for doctoral degree students. For further information, contact a graduate adviser or the MIGS liaison officer.

The normal load for a student with a Graduate Assistantship or Associateship is two or three courses (6-9 hrs.). A student who is employed should reduce his or her 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 advanced undergraduate and graduate students. In all courses open to both undergraduates 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.

UNDERGRADUATE CREDIT IN A GRADUATE PROGRAM

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 the adviser and The Graduate College prior to registering for these courses and then earns a grade of "B" or better. 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. The rate of the tuition fee for these courses is the same as the rate for undergraduate credit.
**RESIDENCY**

The following residency policy was adopted by the Board of Trustees of Western Michigan University on July 20, 1973:

1. Since a student normally comes to Western Michigan University for the primary or sole purpose of attending the University rather than to establish a domicile in Michigan, one who enrolls in the University as a non-resident shall continue to be so classified throughout his/her attendance as a student, unless and until he or she demonstrates that the previous domicile has been abandoned and a Michigan domicile established.

2. The residence of a student who is a minor follows that of his or her 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.

3. No student 18 years of age, or older, shall be eligible for classification as a resident unless the student shall be domiciled in Michigan and has resided in Michigan continuously for not less than one year immediately preceding the first day of classes of the term for which classification is sought.

4. A student shall not be considered domiciled in Michigan unless the student is in continuous physical residence in this state for one year and intends to make Michigan his or her permanent home, not only while in attendance at the University but thereafter as well, and has no domicile elsewhere.

5. The residence of a student who otherwise would be classified as a non-resident will follow that of his or her spouse if the spouse would qualify as a resident for tuition purposes.

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

**STUDENT FEES**

In 1977-78 the following fee schedule was used for graduate study on campus:

<table>
<thead>
<tr>
<th>Type</th>
<th>Fee</th>
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<tbody>
<tr>
<td>Resident</td>
<td>$33.50 per credit hour</td>
</tr>
<tr>
<td>Non-Resident</td>
<td>$73.50 per credit hour</td>
</tr>
</tbody>
</table>

Students enrolling for less than three hours will be assessed the regular rate plus a $10.00 Service Fee.

The fee for graduate study in courses offered off campus through the Division of Continuing Education is $42.00 per graduate credit hour for Michigan residents and $82.00 for non-residents.

**Honor Points**

<table>
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<tr>
<th>Grade</th>
<th>Significance</th>
<th>Honor Points Per Hour Credit</th>
</tr>
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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>
<tr>
<td>AUD</td>
<td>Audit</td>
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</tr>
</tbody>
</table>

**GRADING SYSTEM**

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

**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 4x3, or 12 honor points. Honor points are not involved in courses in which the credit/no credit grading system is used. Undergraduate credit is not computed into the grade point-hour ratio.

Graduated with Honors: A student attaining a point-hour ratio of 4.0 at the conclusion of a master’s program at Western Michigan University will be "Graduated with Honors."

All graduate courses completed, including those not specifically in the student’s program, will be computed in the student’s overall grade point average.
FELLOWSHIPS, ASSOCIATESHIPS, ASSISTANTSHIPS

The Graduate College provides grants up to $4,200 per year for students planning to pursue graduate study. Applications are due by February 15 and appointments are usually made by April 1 for students planning to enroll in the fall semester. Students with appointments are required to pay regular tuition fees; non-resident students will be considered for a limited number of grants entitling them to resident tuition rates for part of their credits.

The following appointments are available:

1. **Graduate College Fellowships** of $3,600 per academic year (fall and winter semesters) are offered to recruit outstanding students entering Master's degree programs. An entering student is defined as one who will have earned no more than six graduate credits by the beginning of the fall semester. Awards are made on the basis of scholarship and leadership potential. The competition for these fellowships is very keen. During the past five years all Graduate College Fellows had academic records above 3.30 in undergraduate work.

2. **Thurgood Marshall Assistantships** of $4,200 per year (three semesters) are offered to students entering Master’s degree programs. They are awarded to students from minority groups on the basis of scholarship and financial need. Participation in the professional activities of a department is required.

3. **Doctoral Associateships** of $4,000 per academic year (fall and winter semesters) are offered to students enrolled in the following doctoral degree programs: Chemistry, Counseling and Personnel, Educational Leadership, Mathematics, Psychology, Science Education, Special Education, and Sociology.

4. **Graduate Assistantships** of $3,600 per academic year (fall and winter semesters) are provided in the departments offering graduate programs. Inquiries about departmental Assistantships should be sent directly to the department or school in which the student plans to concentrate his or her study. Participation in the professional activities of a department is required.

POLICIES GOVERNING GRADUATE APPOINTEES

1. Definitions
   A graduate appointee is a student enrolled in a program leading to a graduate degree and receiving a University-administered stipend or salary which is not less than one-third of the prevailing full amount set by the University for that particular type of appointment.
   Although graduate appointments differ in many important ways, each can be classified as either an assistantship or a fellowship. The critical difference between an assistantship and a fellowship lies in the primary intent of the awardee—whether the service is expected to help the awardee achieve an educational goal. Although there may be some aspect of service connected with a Fellow’s particular departmental activity, this activity is part of the training designated for all participants in the Fellow’s academic program and the service rendered is secondary to the educational goal. Although all, or nearly all, of an Assistant’s service to the department should also be part of the learning experience in the discipline, the primary thrust is in doing part of the work of the department.
   More than one fractional appointment may be held simultaneously. However, in no case shall one person hold more than the equivalent of one full appointment at one time.

2. Types of Appointments
   a. **Assistantships**
      Graduate Assistants are apprentices in the profession. Although the service aspect is emphasized in the definition in order to make a distinction, Graduate Assistants, first and foremost, are students and valued members of the community of scholars. They are chosen for their scholarship and manifest interest in the discipline as well as for their ability to perform the needed service.
      1) The service of Graduate Teaching Assistants (T.A.s) consists of activities directly related to students in the teaching enterprise.
      2) The service of Graduate Research Assistants (R.A.s) consists of research activity under the supervision of a faculty member.
      3) The service of Graduate Non-Teaching Assistants (N.T.A.s) includes all other work in the department not falling under the other categories but generally accepted as appropriate.
   b. **Fellowships**
      Fellowships are awarded to outstanding students in doctoral programs. Service may involve teaching, research, or other appropriate activity.

3. Service Requirement
   The kinds of service required of Graduate Assistants may vary among departments, each of which determines its own range of appropriate possibilities subject to administrative review. Whatever kinds of service are expected, however, a full assistantship in any department consists of twenty hours of service per week or its equivalent. Equivalency is calculated on the basis of the value assigned by a department to the performance of each particular service.

4. Stipends and Salaries
   The amount of the stipend is set by the donor with the concurrence of the Vice President for Academic Affairs. Salaries for full-time Assistants in each type of appointment are determined at the vice-presidential level and shall be uniform throughout the University, except that a department with the approval of the appropriate dean may elect to have a graduated scale (based on time in the program), no amount of which may differ by more than 10% from the University-stipulated amount.
   Fractional awards are made for fractional appointments.

5. **Affirmative Action**
   The University’s Affirmative Action Policy shall apply to graduate appointments.

6. Professional Ethics: Graduate Assistants shall adhere to the same standards of professional ethics as those of the regular faculty.

7. Notification of Status
   At the time of their appointment, graduate appointees shall be informed in writing of the specific conditions of the appointment. They should be informed that the offer of an appointment is contingent upon acceptance into a graduate degree program at the University, and continuation of the appointment depends in part on satisfactory progress in that program and satisfactory performance of assigned duties. The letter should also state the amount of the award, whether a remission of non-resident fees is involved, the probable assigned activities, the length of the appointment, and, if appropriate, the criteria for renewal. Any other conditions peculiar to an individual appointment shall be contained in the letter of appointment.
   Each appointee shall be provided with information prepared by The Graduate College concerning current University-wide procedures, practices, privileges, and responsibilities that relate to graduate appointees. Each department is responsible for providing any supplemental information on these matters that is necessary and special.

8. Professional Development: Assigned activities of graduate appointees shall be relevant professional experiences. Graduate Assistants can expect professional guidance and timely evaluation in the performance of their duties.

9. Evidence of Status
   For formal identification as a graduate appointee, the student should have a special validation sticker on his or her ID card. This validation must be secured at the Office of Registration at the beginning of each term. Validation may be authorized during the spring and summer sessions for graduate appointees on academic year appointments even if the appointee is no longer receiving a stipend or salary.

10. Benefits
    a. **Tuition fees**
       Graduate appointees who are not residents of Michigan may, at the discretion of the University, be granted partial tuition remission for the non-resident portion of their tuition fees. The remitted tuition will be considered “in-kind” earnings and taxable income for students on appointments requiring service.

General Policies and Procedures

11.
b. University housing: Graduate appointees will be accorded priority in securing University housing in residence halls or family housing arrangements if deadlines are observed and as facilities permit.

c. Library: Graduate appointees will be accorded the same privileges and responsibilities as faculty members in the use of the library facilities. These are specified in the faculty handbook (University Policies and the Faculty).

d. Parking: Graduate appointees are exempt from paying the motor vehicle registration fee, but are required to register their motor vehicles. Application may be made at the Department of Public Safety for parking privileges in designated lots.

e. Campus Bookstore: Graduate appointees will be accorded discount privileges on purchases at the Western Michigan University bookstore in the same manner and degree as faculty and staff members.

f. University facilities: Graduate appointees will be accorded the use of University facilities (e.g., student offices, research facilities, etc.) authorized by the director of the facilities on the same basis that they are authorized for part-time faculty.

GRADUATE STUDENT RESEARCH FUND

The Graduate College has established a Graduate Student Research Fund to encourage research by currently enrolled graduate students and to assist them in presenting their findings to professional groups. Grants range to a maximum of $500.

Two basic types of proposals are considered for support:

1. The extraordinary or unusual costs incurred in research projects.
2. Travel costs incurred in presenting study reports and research findings at professional meetings.

The typing of theses and dissertations and the purchase of supplies and equipment commonly provided by departments are not considered to be unusual expenses.

Early in the Fall Semester each year the Awards and Fellowships Committee establishes application deadlines and the required format for the proposals. Applications for research or travel grants may be secured from The Graduate College.

OTHER FINANCIAL ASSISTANCE

1. 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 U.S. 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 fifteen hours per week while attending school and up to forty 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 three percent 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 conditions.

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 their 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 Tacona 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:

   a. Insured Tuition Payment Plan
   6 Saint James Ave.
   Concord, New Hampshire 03301

   b. Tuition Plan
   5259 North Tacona Avenue
   Indianapolis, Indiana 46220

   c. State Direct Student Loan (SDSL): This is a State of Michigan program designed to provide subsidized guaranteed student loan to Michigan residents who, in order to enter the "law enforcement" profession, are eligible to apply for the SDSL program. Inquiries should be directed to the WMU Office of Student Financial Aid and Scholarships (383-1806).

c. 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 education, and enforcement of the criminal law." Grants up to $400 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 $1,100 per semester are available for full-time graduate students enrolled in the " Corrections Program," offered by the School of Social Work. Loan recipients may be employed in, or intend to enter, the "law enforcement" profession.

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.

STUDENT EMPLOYMENT REFERRAL SERVICE

Students may find employment through numerous local employers in and around the City of Kalamazoo and on campus. Students looking for work can receive assistance through the Student Employment Referral Service in the Office of Student Financial Aid and Scholarships.

The Student Employment Referral Service actively recruits employment opportunities for students within the Kalamazoo area and on campus. On campus each department handles its own student employment program, and these employment opportunities can best be secured by direct contact with departments. Depa lays to list job vacancies with the service. When arriving on campus, students actively seeking employment are encouraged to contact the Student Employment Referral Service.

VETERANS' ASSISTANCE

Answers to questions pertaining to veterans' educational assistance.
benefits, and other problems may be obtained from the Veterans Administration education and training representatives at 843 Steers Ave. (opposite side of the street and just west of the Student Services Building). The telephone number is 383-8151.

The areas of assistance available include information and determination of eligibility concerning V.A. education benefits, compensation, pension, medical benefits, loan guarantees, and all other V.A. benefits. Emphasis is placed on assisting student veterans who experience problems receiving their V.A. education benefits. Veterans are reminded to notify the V.A. representatives any time they move, change their credit-hour load, or change the number of their dependents.

**STUDENT ACADEMIC RIGHTS**

1. **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 performance 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.

2. **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/she has a grievance regarding a grade, he/she should first arrange a meeting with the 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/she has not received a satisfactory resolution of the grievance from the instructor, he/she should then go to the department chairperson or head, who may effect a satisfactory resolution.

      4) If the student is still dissatisfied after seeing the department chairperson or head, the student should next see the University Ombudsman. The function of the Ombudsman in this situation is to collect information 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 faculty and three graduate students.

      6) When a case is presented to the Committee, the Committee shall investigate it, making sure that all interested parties have a full opportunity 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 to 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 inform the student, the faculty member, the department chairperson 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/she may initiate the change. If the faculty member prefers not to initiate the change, the Committee will do so by notifying the University Registrar.

      8) To protect all parties involved in any case, the strictest privacy consistent 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 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 provided written copies of their academic advisors' recommendations, and students will not be held responsible for errors made by their advisors. 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/she was admitted, or in a later catalog if he/she chooses to meet its graduation requirements.

      2) The student shall not be held responsible for meeting curricular requirements that are not listed or not applicable under the catalog governing the work he/she 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 programming or 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 complaints and recommend or negotiate fair solutions on behalf of the student.

**UNIVERSITY OMBUDSMAN**

The Ombudsman is a presidential appointee chosen with the active participation of students, faculty, and staff and confirmed by the Board of Trustees. 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/she discovers a malfunction in the administrative process or an abuse of power, he/she assists the individual in accomplishing a quick and fair resolution of his/her problem. He/she can remedy some problems alone, but when appropriate, he/she 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. No person shall suffer any penalty because of seeking assistance from the Ombudsman. All information presented to that office by persons seeking assistance shall be considered confidential. The Ombudsman 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 1,500,000 items including books, bound periodicals, music scores, recordings, maps, documents, and materials in microform. Over 11,000 periodical and serial titles are currently received. The Library system is a depository for Michigan and United States government documents and receives the microprint edition of the United Nations documents as well as monographs and reports of the major associated organizations.

**Dwight B. Waldo Library** which is named for the first President of the University houses the main collection. Built in 1959, it was enlarged in 1967 to almost double its original size. Also located in Waldo are the School of Librarianship, the University Archives, and the Audio-Visual Film Library.
Through the use of various approval and gathering plans as a part of the acquisitions program, the Library places an emphasis on building a strong collection of current imprints in the fields of study at the University. Special collections include:

1. The Ann Karcher Memorial Collection on Africa is an extensive collection of materials on Africa south of the Sahara. Started more than a decade ago, it has grown rapidly to become a noteworthy addition to library resources.
2. The South Asia Collection is another area of special strength. Together with the Karcher African collection it helps support the University's 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 counties of Southwest Michigan. In addition to books, this collection contains manuscripts of early residents of this area.
5. Another area of collection strength is the history, religion, philosophy and culture of the medieval period—holdings which help support the programs of the University's Medieval Institute. The library maintained by the Cistercian Studies Institute further provides in-depth resources for the study of this era in history.
6. The C. C. Adams Ecological Collection consists of the personal collection and papers of the pioneer American ecologist, Charles C. Adams.
7. The microfilm collection of over 315,000 contains such items as the Human Relations Area File, the American Periodical Series, the Newbank Urban Affairs Library, Early American Newspapers of the 18th and 19th centuries, the U.S. National Archives, books printed in Great Britain from 1475-1640, and ERIC documents (documents in educational research published by the Educational Resources Information Center).
8. The Map Library, a unit of Reference Services, holds some 145,000 items which include Army and U.S. Geological Survey maps, some antique maps of special historical interest, and various domestic and foreign maps which are cataloged and available for use. In addition to maps, the Map Library also possesses over 850 atlases.

The Business Library, located in North Hall, has a collection of some 43,000 books, supplemented by special microfilm collections, and business-oriented periodical and newspaper titles.

The Music Library is on the second floor of Maybee Music Hall. In addition to a book collection of some 20,000 books and scores and 75 periodical subscriptions, this branch contains a collection of 10,000 phonograph records and extensive listening facilities.

The Physical Sciences Library contains some 49,000 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 over 260,000 bibliographic items and receives over 600 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.

General and specialized reference service is provided at the main Reference and Information Desk, the Science Reference Desk, and in the Documents and Maps Department in Waldo Library. Reference collections of indexes, abstracts, dictionaries, handbooks, bibliographies, etc. are maintained in each of the University Libraries, and reference librarians offer personal assistance in finding the books, information and other resources you may need for class or research related problems. In addition, the reference staff offers a three credit hour course: Library Resources, General Studies 241. The course is designed to introduce the student to the use of our library system and especially to the bibliographic tools and methods necessary to find information in the various subject fields.

An on-line automated retrieval system (OARS) offered by the Library accesses some 60 data bases in nearly every subject. The computerized operation allows users to significantly shorten time spent on literature searches for research projects. It is available to faculty, staff and students on a cost-recovery basis. Inquiries about this service may be made at Referral Services in the main library and at all branch libraries.

The Library also provides library service to students enrolled in off-campus classes through the libraries at the Continuing Education Centers in Benton Harbor and Muskegon, and in Grand Rapids through an arrangement with the Grand Rapids public library.

Research materials which are not in our collections and are not available or not suitable for purchase can usually be obtained through interlibrary loan. Requests for loans may be initiated at public service desks in all libraries, as well as at the Interlibrary Loan Office located in Waldo Library.

The University Libraries hold membership in the Center for Research Libraries, a one-fifth 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.

Self-service, coin-operated photocopy machines are located throughout the library system. An attendant-operated copying service is located at the Waldo Library Circulation Desk. Microform copies 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 special locker or a locked cabinet in Waldo Library. Assignments are made for one semester; application forms are available at the Waldo Library circulation desk.

**HOUSING**

**Family Housing**

Many graduate student families choose to live on campus in Family Housing. Graduate students on assistantships,associateships,fellowships and academic year institutes are given priority for assignment.

The University provides 590 apartments for use by student families attending Western. Both one- and two-bedroom styles, either furnished or unfurnished, are available. The reasonable rental rates vary depending on location and apartment style. The rate includes all utilities (except telephone), parking privileges for one vehicle, and maintenance service. Laundry facilities and children's play areas are conveniently placed throughout the apartment areas.

For further information and application, write: Manager, Family Housing, Student Services Building, Western Michigan University, 49008.

**Residence Halls**

Each year, hundreds of WMU students discover more about the world they live in, their colleagues, and themselves through the involvement possible while living in a residence hall. Opportunities for both participating and learning await those interested. Any currently enrolled WMU student regardless of the number of semester hours he or she is enrolled for, may reside in a hall. Newly admitted undergraduate students are automatically sent information (Fall—month of May; Winter—November; Spring—February; and Summer—March) detailing the residence hall offerings available for the semester they anticipate coming to the University. Individuals returning to the university as re-entries and newly admitted graduate students will receive information by return mail upon requesting details from the Manager of Residence Hall Facilities, Student Services Building.

Admission to the University does not carry a guarantee that a resident hall assignment will be available. Likewise, receiving a contract and submitting a residence hall assignment request does not guarantee space will be available. Assignments are made on a first-come, first-served basis up to the space available. Requests received after all halls have been filled to capacity will be placed on a waiting list.

Nineteen halls offering a variety of services are located in all sections of the campus. Some halls provide room-only accommodations with the individuals purchasing their meals off campus or in the University Student Center. One non-food service hall (Spindler) offers extensive cooking facilities for the resident and, in addition, is available for continuous housing throughout the year. Residents of this hall are permitted to remain during vacation periods.

Most of the residence halls furnish 20 meals per week (Sunday evening excluded), with the dining rooms open from 7 a.m. to 6 p.m. six days a week.
week, and until 1 p.m. on Sunday. The food service enjoys an excellent reputation with an extensive menu developed in consultation with professional dietitians and resident.

Different assignment patterns are used in the various residence halls. Some halls are reserved exclusively for men, others for women, while in other locations residents are assigned by sex to alternate floors or alternate suites. In locations where coed-type assignments exist, separate bath and toilet facilities are provided.

The residence hall offerings at Western attract nearly 7,000 students each Fall/Winter semester. The residents assigned to the halls represent individuals from all walks of life and academic interests. In addition to the majority of the students who are from all of the 50 states, many foreign countries are represented. Such a diverse group of individuals provides a stimulating atmosphere for the individual interested in learning about others.

Graduate students are welcome in all halls and often choose a hall because of location or assignment pattern. Of special interest to graduate students are Walwood Hall, a coed non-food hall on East Campus, and Davis Hall, a coed food hall on main campus. Students must be 21 or older to live in Walwood and must be 21 or of junior standing to live in Davis; however, no hall is reserved for the exclusive use of graduate students.

Charges for residing in a residence hall are kept as low as possible, recognizing the minimum services necessary and desired by most students.

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 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, physical therapy, 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 are requested to have a Health Questionnaire on file at the Center. If a student has an illness which may require further treatment while attending the University, such information should be sent with a letter from the family physician. A student who is receiving allergy injections may have his/her vaccine stored at the Health Center and may have the vaccine administered by a nurse only when a doctor is in the building.

During the Fall and Winter Semesters the Health Center is open from 7:45 a.m. to 4:45 p.m., Monday through Friday, and from 9:00 a.m. to 11:30 a.m. on Saturday. Emergency service is provided from 4:45 p.m. to 10:00 p.m., Monday through Friday, for a nominal fee. During the Spring Session, the Health Center is open from 7:45 a.m. to 4:15 p.m., Monday through Friday, and from 9:00 a.m. to 11:30 a.m. on Saturday. During the Summer Session, the Health Center is open from 7:45 a.m. to 4:15 p.m., Monday through Friday.

In cases of sudden illness or serious accident at hours the Health Center is closed, a student patient may be taken to an emergency room of a local hospital. The decision must be made on the basis of the seriousness of the medical problem and whether it can wait until the Health Center is open.

Any expenses incurred are the responsibility of the student.

Students who require vision, dental, or 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 soon 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 or 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 obtained when a student is admitted to the University.

The Health Center and Pharmacy are open during the regular academic school year. Both the Health Center and Pharmacy are closed for the official holidays and provide limited hours during the designated school breaks and between terms or sessions.

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 (e.g., F-1, J-1, B-2, etc.) are required to maintain health and accident insurance coverage while they are attending the University which will provide benefits in the United States. Students not covered by an existing insurance policy may be interested in the University Health Service health policy offered to students through the University. Foreign students may also wish to contact the Office of International Student Services for information about other desirable insurance programs.

UNIVERSITY PLACEMENT SERVICES

Assistance in total job search planning is offered free of charge by the University Placement Services to graduate students and alumni of Western Michigan University. Placement services include: job counseling, occupational information library, on-campus interviewing, weekly employment opportunities bulletin, job vacancy postings, direct referrals to employers, maintenance and distribution of credentials, assistance with job search correspondence such as resumes and letters of application, interviewing videotapes, special graduate workshops and seminars, summer job information, and referral to specialized campus agencies providing career planning services.

COUNSELING CENTER

The services of the University Counseling Center are offered to all graduate students and spouses and their children. Among the major services offered are:

1. Individual counseling. to provide students with an opportunity to discuss various concerns, including career exploration, academic counseling, educational goals and personal or emotional difficulties.
2. Group sessions and workshops. to increase self-understanding, facilitate life styles and career decisions, improve relationships with others, increase leadership skills, and eliminate behaviors that are self-defeating.
3. Career Exploration and Media Center. to disseminate a wide variety of information concerning careers as well as a substantial number of catalogs and bulletins from other American colleges and universities.
4. Career Development Program. to assist students in the exploration of individual career possibilities and increase skills necessary for decision making and future planning.
5. Training and Internship Programs. to provide training opportunities for graduate students and interns from Counseling and Personnel Psychology and related programs.

The Counseling Center is accredited by the International Association of Counseling Services and is staffed with professionally trained counselors and psychologists. All students using the counseling service are assured of complete confidentiality.

Appointments may be made by telephone or by stopping at the Counseling Center reception desk between 7:45 a.m. and 4:45 p.m., Monday through Friday. Graduate students unable to use Counseling Center services during regular hours may make arrangements for evening appointments by calling 383-1850.

TESTING AND EVALUATION SERVICES

The services of the Testing and Evaluation 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 administered and interpreted at a small fee to the student or the student's family. Information and applications for most Graduate College tests are available in the Testing office. Testing and Evaluation Services is the regional office for the Miller Analog Test which is given by appointment only.

Testing and Evaluation Services has the largest selection of test files in Southwestern Michigan. These tests can be obtained at the Testing office
for use by students and faculty members for informational purposes, class projects, research purposes or most any other valid reason.

If the student is working on a research project, survey, or collecting data for any valid reason, the same test sheets used by faculty members are available at no charge. Testing Staff members will assist in the planning of the project wherever possible.

Testing and Evaluation Services is located in West Hillside Apts., D-4, and the phone number is 383-0955. The department hours are 7:45-4:45 M-F.

OFFICE OF INTERNATIONAL STUDENT SERVICES

Western Michigan University has long recognized the value of international educational interchange. Over the years, hundreds of students from other nations have entered the University to pursue their educational objectives. Conversely, many U.S. students have sought to broaden their educational background by undertaking a period of study and/or travel in a foreign country(ies). This educational interchange has given the University an international atmosphere which has fostered both formal and informal cross-cultural contacts and the development of positive interpersonal relationships on the campus as well as in the community. The Office of International Student Services was established to assist students involved with the interchange process.

Foreign Student Services: The Office of International Student Services deals with the special needs and circumstances of foreign students such as processing of applications for admission, conducting an orientation program for new foreign students prior to each enrollment period, assisting with housing arrangements, coordinating community programs involving foreign students, providing advisement on matters related to each student's immigration status, serving as a liaison between the student and his/her sponsor, and offering personal and social counseling on a wide variety of concerns. While at the University, foreign students are encouraged to participate in academic and social activities as their interests and time allow.

Any foreign student interested in seeking admission to Western should contact the Office of International Student Services for an application form and instructions. To qualify for admission, a foreign student must demonstrate to the University that he/she is academically, financially and linguistically capable of undertaking the academic program being proposed, generally on a full-time basis. Before a prospective student can be admitted and the Certificate of Eligibility for visa (Form I-20 or DSP-66) issued, educational records documenting all previous secondary and post-secondary schooling must be on file along with a financial statement, signed and returned from a sponsor showing that adequate money will be available to cover the student's educational and living expenses for the duration of anticipated enrollment. Regarding linguistic capability, those prospective students from non-English speaking countries who have not successfully completed at least one year of full-time academic study at another U.S. accredited institution must submit the results (scores) of a recognized English language proficiency examination prior to initial registration. The two examinations preferred by the University are the Test of English as a Foreign Language (TOEFL) and the Michigan Test of English Language Proficiency (MTELP). To qualify for unrestricted full-time enrollment, a prospective student must present a TOEFL "total score" of at least 550 or a MTELP "adjusted score" of at least 80%. Prospective students who are subject to the English proficiency test requirement but who have not submitted test scores prior to the time they report for orientation and enrollment will be required to sit for an on-campus administration of a University prescribed English proficiency examination. Students whose scores on this examination indicate a need for further training in English will be advised accordingly. Within certain limits, a prospective student who has achieved less than the minimum score required for unrestricted enrollment will be allowed to register for courses on a restricted basis. The limits and the restrictions to be observed will be established and applied by the Office of International Student Services.

Foreign Study Services: Students who are interested in or who are planning to study and/or travel in a foreign country are encouraged to utilize the services of the OISS. The Foreign Study Coordinator maintains an extensive library of materials on overseas programs. Students who are undecided can receive advice and counsel which will help them to decide on the appropriateness of a foreign study/travel experience and which of the numerous opportunities would be best designed to suit their circumstances and purposes. Information regarding financial aid possibilities is also obtainable as is information on the International Student Identification Card, the Youth Hostel Pass, and other discount travel documents.

MOTOR VEHICLE REGISTRATION

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

Drivers must obtain application forms and pay the appropriate registration fee to the Department of Public Safety.

All vehicles must be registered within seventy-two hours after the beginning of classes. After this time vehicles must not be parked on campus until registration.
SECTION II

Master's Degree Programs and Requirements

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 = 4.0) in the credits completed in the last two years of undergraduate work.
   d. Acceptance by both The Graduate College and a unit for a definite program of study.
   e. Meet any additional admission requirements as stated in the individual program descriptions.

2. Candidacy
   a. A Graduate Student 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 Certificate of Admission and/or the Graduate Student Permanent Program must be removed before candidacy will be approved. These reservations include the attainment of a satisfactory score on the English Qualifying Examination.
   c. A point-hour ratio of at least 3.0 (A = 4.0) is required. Honor point deficiencies acquired in credits earned at Western Michigan University cannot be made up by credits earned at another university.
   d. A thirty-hour program may include a maximum of four hours of credit in 598 readings courses.

3. Graduation — (See Calendar of Events for application deadline.)
   a. Diploma Application: A diploma application must be submitted by October 1 for the December Commencement, by February 1 for the April Commencement, and by June 1 for the August Commencement.
   b. Minimum Credit Hours: Completion of a minimum of thirty 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. Each course included in a program must be completed by the day of graduation.
   c. Point-Hour Ratio: A point-hour ratio of 3.0 (A = 4) is required. 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. No undergraduate credit is computed in the graduate point-hour ratio.
   d. Hours After Candidacy: The election and completion of at least six hours is required after being approved for Candidacy.
   e. Transfer Credit: Six semester hours (three and four quarter or term hours are transferred as two 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.
   f. 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.
   g. Master's Thesis: A student writing a Master's Thesis (6 hrs.) must present the thesis in a form acceptable to the unit and The Graduate College. In writing a thesis a student must purchase the most recent edition of Specifications for Masters' Thesis, Specialist Projects, and Doctors' Dissertations, available in the Campus Bookstore.

GENERAL REQUIREMENTS FOR A SECOND MASTER'S DEGREE

When a student wishes to secure a second master's degree he or she may include a maximum of ten credits from his or her first graduate degree program. The second degree program must fulfill all of the other usual requirements for a master's degree, except the English Qualifying Examination.

PROGRAMS LEADING TO THE MASTER'S DEGREE

In order to earn a degree, a student is required to complete a program of study. Each degree candidate must choose a graduate program that is compatible with his or her 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.

Accountancy

John D. Sheppard, Gale E. Newell, Advisers
Room 151, East Hall

The Master of Science in Accountancy is a thirty-hour graduate program of which at least fifteen hours are in accounting. The program prepares the student for professional careers in industry, commerce, finance, government, and public accounting. The degree meets the Michigan educational experience requirement to sit for the uniform examination for Certified Public Accountant (C.P.A.).

Knowledge and understanding of the theory, literature, controversial concepts and professional practice of accounting are developed. The student's understanding of the relationship of accounting to other fields in business and to other disciplines is also stressed. Course work is taken in the areas of Financial Accounting, Cost and Managerial Accounting, Auditing, Taxation, Systems, and Accounting Theory.

Admission requirements: Admission to the program is obtained through the Admissions Committee of the Department of Accountancy. The following criteria are used in the evaluation of applications:

The applicant must have attained a satisfactory score on the English Qualifying Examination.

The applicant must have an undergraduate degree and an acceptable academic record as evidenced by official transcripts from all colleges and universities attended. Attention is given to overall grade averages, especially to grade trends and areas of scholastic strength.

The applicant must have received a satisfactory score on the Graduate Management Admission Test.

Prerequisites: Undergraduate prerequisites are Principles of Accounting, Income Tax Accounting, Management, Marketing, Statistics, Finance, Business Law, and a course in Computer Usage.

Program requirements: Each individual program must include twenty-one graduate credits earned in courses numbered 600 and above and must have prior approval of a departmental adviser. In addition to the Accountancy major requirements, the student must elect a minimum of six graduate hours outside the Department of Accountancy.

Alcohol and Drug Abuse

Dennis Simpson, Adviser
Room B-118, Henry Hall

Western Michigan University offers a program at the master's degree level for the training of substance abuse specialists through the Specialty Program in Alcohol and Drug Abuse (SPADA). The departments of Biology, Counseling and Personnel, Psychology, Sociology, and the School of Social Work provide the multidisciplinary and interdisciplinary bases to the Specialty. Courses are planned and are taught by faculty from the contributing disciplines.

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Students receive training for dealing with varied aspects of substance abuse including prevention, community education, treatment and rehabilitation, program management and evaluation. Program graduates are employed by many public and private organizations including social agencies, psychological counseling offices, alcohol and drug councils, hospitals, schools, and industries. Students receive their master’s degree in their respective disciplines and upon completion of the eighteen hour SPADA program requirements receive a certificate of Specialty in Alcohol and Drug Abuse.

Admission requirements: Students must be accepted by The Graduate College and admitted to a master’s, specialist, or doctoral degree program. Persons who have previously completed a graduate degree or an acceptable equivalent (e.g., B.D. or L.B. from an accredited institution) may apply for admission to the SPADA Program.

Program requirements: In addition to satisfactory completion of the requirements of the individual department or school each student will satisfactorily complete a program consisting of nine semester hours of courses related to substance abuse, three hours from a list of approved electives outside the participant’s discipline, and a six hour field placement in one or more agencies dealing with some phase of substance abuse. Credit for the field placement will be elected from the courses designed for such activities in the department or school in which the student earns his or her graduate degree. The hours taken for the academic and seminar components of the Specialty Program are in addition to the degree requirements of the department or school in which the student is enrolled. In some of these units the required SPADA courses may be integrated with the regular degree requirements. Specific requirements of this integration vary and can be determined for each department or school. In addition to the six semester hour field training experience the following courses are required in the Specialty Program in Alcohol and Drug Abuse:

- BIOL 507 — The Biology of Addictive Drugs (3 hrs.)
- SOC 617 — The Etiologies of Substance Abuse (3 hrs.)
- BIOL 603, C-P 631, SOC 618, SWRK 663 — Seminar in Substance Abuse (3 hrs.)*

*These courses are cross-listed in the departments and indicated.

SPADA participants must elect one of the following courses outside their department or discipline:

- C-P 666 — Assessment Interviewing & Treatment Planning (2 hrs.)
- SOC 687 — Evaluation Research (3 hrs.)
- PSY 597 — Behavioral Pharmacology & Toxicology (3 hrs.)
- PSY 663 — Behavior Change Marital & Family Therapy (3 hrs.)
- PSY 697 — Physiological and Psychological Aspects of Drug Dependence and Withdrawal (3 hrs.)
- SWRK 636 — Family and/or Small Group Theory (2 hrs.)
- SWRK 645 — Social Welfare Policy Planning and Administration (2 hrs.)
- SWRK 667 — Seminar in Social Planning I (3 hrs.)
- ED 555 — Alcohol Education (2 hrs.)

Anthropology

Robert Jack Smith, Adviser
Room 102, Moore Hall

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 requires a concentration, appropriate to its academic level, in one of the major branches of Anthropology. These may be identified as archeology, socio-cultural anthropology (including ethnology), physical anthropology, and linguistics (in cooperation with the Department of Linguistics). Research experience in archeology 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 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 Adviser.
6. Each applicant must submit separately to the Department Chairperson a one-page statement of intent with respect to his or her interests in anthropology and the program at Western.

Program requirements:

1. Complete at least thirty semester hours, selected in consultation with the student’s major adviser. At least twenty of the hours must be in Anthropology. The remaining may be in Anthropology or in related disciplines as determined by the needs of the student.
2. ANTH 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
Room 1408, Sangren Hall

The Department of Art offers three graduate programs. The Master of Arts degree program in Art is a one-year program for professional artists and art educators. This program with an emphasis on art education requires a minimum of thirty-six credit hours. With an emphasis on art practice, it requires thirty credit hours. The Master of Fine Arts degree program is a two-year program with sixty credit hours required. The Master of Arts degree program in the Teaching of Art is a thirty credit hour program for art educators. The following are the major areas of concentration in all programs: Ceramics, Graphic Design, Jewelry and Metalsmithing, Multi-Media, Painting, Photography, Printmaking, Sculpture, and Textile Design.

Admission requirements for all programs:

1. Deadlines for application:
   - For Spring, Summer, Fall semesters March 15
   - For Winter semester October 1
2. An undergraduate degree with a major in art or its equivalent.
3. A portfolio of art works or slides must be submitted directly to the graduate adviser of the Department of Art. It should include twenty to thirty examples of work in the student’s area of concentration and other related areas.
4. A statement indicating the reasons for seeking admission to a graduate program and the specific area of concentration.
5. Three letters of recommendation for admission or a graduate assistantship.

MASTER OF ARTS IN ART

Advisers: T. D. Argyropoulos, Room 1408, Sangren Hall
J. Frattallone, Room 1428, Sangren Hall

Art Education emphasis. minimum thirty-six credit hours. For students interested in advanced study in art practice and art education, essentially for furthering their skills as public school or junior college teachers. Art Practice emphasis. minimum thirty credit hours. For students interested in advanced study in art practice for professional reasons. Eighteen M.A. in Art degrees have been awarded since 1971.

1. Twelve hours in one area of concentration.
2. Six hours in advanced art history.
3. Two hours in ART 625, Graduate Seminar.
4. A review of all art work by a graduate committee before the end of the first semester.
5. Two hours in ART 613, Graduating Presentation. This course includes a final exhibition and oral presentation which must be approved by a departmental committee before the M.A. degree is granted.

Additional requirements for each emphasis:

Art Education emphasis:
1. Nine hours in advanced art education courses.
2. Five additional hours in art practice or approved cognates.
3. A final paper or thesis.
Art Practice emphasis:
1. Five additional hours in art or art history.
2. Three hours in an approved cognate.

MASTER OF FINE ARTS
T. D. Argyropoulos, Adviser
Room 1408, Sangren Hall

The sixty-hour Master of Fine Arts degree recommended as a terminal degree for practicing artists and for prospective higher education art professors. It is intended for artists who have a clear notion of their artistic purposes and are primarily interested in continuing their personal and artistic development. The Department of Art provides all graduate students with a studio and encourages them to work independently under the advice of one or more faculty members. An extensive schedule of exhibitions and visiting artists is an important part of the graduate program.

The Department of Art is a member of the National Association of Schools of Art. The M.F.A. program requirements meet or exceed the recommendations of the College Art Association of America. Twenty M.F.A. degrees have been awarded since 1972.

Program requirements:
1. Twenty-four hours in the major area of concentration.
2. Nine hours in art history.
3. Fourteen hours in electives, in which nine must be in Art.
4. Three hours in ART 610, Advanced Drawing.
5. Two hours in ART 625, Graduate Seminar.
6. Six hours in courses outside the Department of Art.
7. Reviews of all art work by a graduate committee before the end of the first and third semesters.
8. Minimum of one year residence on campus.
9. Two hours in ART 613, Graduation Presentation. This course is an exhibition and oral presentation which must be approved by a graduate committee before the M.F.A. degree is granted.

MASTER OF ARTS IN THE TEACHING OF ART
J. Frattallone, Adviser
Room 1428, Sangren Hall

The thirty-hour Master of Arts degree program in the Teaching of Art, in cooperation with the Department of Education and Professional Development, is specifically designed for the educational needs of public school art teachers and the course content provides advanced study in art and teaching.

Program requirements:
1. Fifteen hours in art credits to include art education.
2. Nine hours selected from four courses in the Department of Education and Professional Development:
   b. ED 602, School Curriculum
   c. ED 603, Social and Philosophical Foundations
   d. ED 604, Psychological Foundations of Education
3. Six hours of electives in major field of education.

Biology
Richard W. Pippen, Chairperson of Advisors
Room 163, Wood Hall

The Master of Arts degree program in Biology is designed to promote the student's ability to conduct research, including analysis, interpretation, and presentation of data, as well as to provide additional coursework in the area of Biology selected. Specialization is permitted in most areas of biology, but areas of greatest strength in our department are Aquatic Biology, Botany, Ecology, Physiology (Plant and Environmental), and Zoology (especially Invertebrate and Ornithology). A minimum of thirty hours is required in the Master's Thesis option and thirty-six hours in the non-thesis option.

Admission requirements:
1. Application must be made to the department, as well as to The Graduate College. Foreign students should also apply to the Office of International Student Services.
2. At least one course in the various areas of biology, including botany, zoology (general biology), ecology, genetics and physiology.
3. Two semesters of mathematics.
4. A course in organic chemistry.
5. Two semesters of physics.
6. All sections of the Graduate Record Examination. A limited number of deficiencies in these areas may be completed after the student has been admitted to the program but before approval for candidacy.

Program requirements:
Thesis and non-thesis options are available. Both programs are directed by the student's major adviser and Advisory Committee.
1. Thesis Option
   a. At least twenty-four hours of graduate coursework in biology and related areas.
   b. BIOL 700, Master's Thesis (6 hours)
2. Non-thesis Option
   a. At least thirty hours of graduate coursework in biology and related areas.
   b. BIOL 710, Independent Research (6 hours)
   c. Submit evidence to the Advisory Committee of ability to conduct, analyze, interpret, and present research data.

Biomedical Science
Leonard Beuvling, Adviser
Room 216, Wood Hall

The Master of Science degree program in Biomedical Sciences is designed to develop the ability of the student to carry out research projects including their design, application, and analysis. This experience is supported by substantive coursework. This degree may serve as a foundation for continued graduate work or may lead to positions in a variety of occupations in industry, health services, and teaching. The major areas of training are in Genetics, Immunology, Microbiology, Morphology, and Physiology. A minimum of thirty hours is required for a Master's Thesis option and thirty-six hours for the non-thesis option.

Admission requirements:
1. Application to the department and The Graduate College.
2. Three letters of recommendation.
3. At least four courses in Biology, such as animal biology, cell biology, genetics, microbiology, and physiology.
4. Two semesters of mathematics (not including introductory college algebra).
5. A course in organic chemistry and a course in quantitative analysis or biochemistry.
6. Two semesters of physics.
7. The Aptitude and Advanced test in biology portions of the Graduate Record Examination.
8. Application deadlines for the Fall semester are March 15 and June 15; for the Winter semester it is September 15. A limited number of deficiencies in coursework may be completed after the student has been admitted to the program but before approval for candidacy.

Program requirements:
Thesis and non-thesis options are available. Both programs are directed by the student's major adviser and Advisory Committee.
1. Thesis Option
   a. At least twenty-four hours of graduate coursework in Biomedical Sciences and related areas.
   b. BMED 700, Master's Thesis (6 hours).
   c. Pass a comprehensive oral exam.
2. Non-thesis option
   a. At least thirty hours of graduate coursework in Biomedical Sciences and related areas.
   b. BMED 710, Independent Research (6 hours).
   c. Submit evidence to the Advisory Committee of ability to conduct, analyze, interpret, and present research results.
   d. Pass a comprehensive oral exam.

Biostatistics
Michael R. Stollne, Adviser
Room 3306, Everett Tower

The objective of this program, which leads to the Master of Science degree, is to prepare students for the professional careers in biostatistics, primarily in pharmaceutical-related industries and in medical or health-related research facilities. This program is administered through the
Department of Mathematics, with the assistance of the faculties in the Departments of Biology and Biomedical Sciences. The program requires a minimum of thirty-five credit hours of graduate work, including a ten credit hour internship experience.

Admission Requirements: For admission to this program a student should have completed successfully an undergraduate program with a major in mathematics or statistics and a minor in biology or biomedical science, or a major in biology or biomedical science and a minor in mathematics or statistics, or the equivalent. More specifically the undergraduate program should have included the following (numbers refer to WMU courses that would be acceptable):

1. Biology or Biomedical Sciences: courses in at least three of the following four areas—ecology (BIOL 301), genetics (BMED 250), physiology (BMED 350), microbiology (BMED 352); or sufficient undergraduate course work so that three 500-level biology courses or three 500-level biomedical sciences courses can be taken in the graduate program.

2. Mathematics: multivariate calculus (MATH 272), differential equations (MATH 274), elementary linear algebra (MATH 230), probability (MATH 460 or MATH 560 or CS 560).

3. Chemistry: organic chemistry (CHEM 361 or 365), biochemical (CHEM 450 and 456).


Admission Procedures:

1. Applications for Admission to the program for the Fall semester must be received by the preceding February 14.

2. The Biostatistics Admission Committee will admit candidates to the program based on the following criteria:
   a) strength and breadth of the undergraduate course work, and
   b) availability of internships. (Admission to the program is limited by the number of internship opportunities available.)

3. A promising student may be tentatively admitted to the program with deficiencies in the Admission Requirements and be required to complete this work as extra program requirements.

Program Requirements: (35 credit hours total)


2. Biology or Biomedical Science Component (9 credit hours): Three approved 500-level biology courses or three approved 500-level biomedical science courses. These courses are chosen to fit a student’s individual interest.

3. Internship Component (10 credit hours): A professional field experience internship with a health-related industry for a period spanning at least two adjacent terms. (45 hours of intern work experience is required for each credit hour; normally this is taken as MATH 712.) Before taking up the internship each intern must have successfully passed a written examination covering the material of MATH 560, 562, 662. (Completion of MATH 664 is also recommended before the internship.)

4. Final Report: At the completion of the internship each candidate must submit a final report on the internship project.

The Department of Mathematics offers opportunities for financial support of graduate students through Graduate Assistantships and Fellowships. During the internship phase of the Biostatistics program students normally receive a stipend contributed by the sponsoring agency. Individuals desiring further information about financial support, or about the graduate programs related to mathematics as a whole, should contact the Mathematics Department (Room 3319, Everett Tower) or the Program Adviser.

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 better 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, Room 3406, Sangren Hall
Stanley Suterko, Room 3402, Sangren Hall

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 latter 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-nine semester hours is required to earn the degree of Master of Arts.

REHABILITATION TEACHING

Advisers: Donald Blasch, Room 3406, Sangren Hall
Ruth Kaarlela, Room 3408, Sangren Hall

The rehabilitation teacher assists the visually impaired adult to learn to live without the use of sight, by 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, in rehabilitation centers or by home visits. The rehabilitation teacher works with individuals, or with very small groups.

The thirty-seven hour program for preparation of rehabilitation teachers extends over a period of twelve 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.

Business

Darrell G. Jones, Dean
Ronald C. DeYoung, Assistant Dean
Michele M. Moe, Admissions Officer
Room 250, North Hall

MASTER OF BUSINESS ADMINISTRATION

This professional degree 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 knowledge in the areas of critical analysis, business operations, changing environments, professional development, and specialized professional interests.

The student is challenged to develop the judgment, discriminating capacity, knowledge, and understanding which will permit him/her 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.

Admissions requirements: MBA applicants must submit scores for the Graduate Management Admission Test (previously known as the Admission Test for Graduate Study in Business) prior to consideration for admission to the program. The Graduate College’s English Qualifying Examination is required for all graduate students in the College of Business before admission to the program will be completed.

Students admitted on a Permission to Take Classes (PTC) status are not allowed to enroll in graduate business courses.

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. A minimum of twenty-four hours must be
taken in 600 or higher level courses. The program consists of prerequisites,
MBA core courses, and an area of concentration.

A 3.0 overall graduate grade point average is required for graduation.
Additionally, a 3.0 average is required for all grades received in all courses
required for the MBA degree.

Program requirements:
1. Prerequisites: In order to provide students with the background of the
common body of knowledge in business and administration required
by the American Assembly of Collegiate Schools of Business, the
following courses are required in Accountancy, Economics, Finance,
Law, Management, Marketing, and Statistics. This requirement may be
satisfied by waiver (in case of prior completion of appropriate
undergraduate course or the WMU MBA core courses, or the
equivalent); by examination; or by taking 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. A minimum grade
of "C" is required in all prerequisites.

2. MBA Core: The core consists of Applied Economics for Management
600, Legal Controls 607, Accounting Control and Analysis 607, 
Finance and Management 608, Management Analysis and Practice 607,
and Professional Formulation and Administration 699. MBA students
with undergraduate majors/minors in Business Administration areas
will be advised about proper upper-level discipline substitutes for core
courses with the prior approval of their area advisers.

3. MBA Concentration: An area of concentration may be selected from
Accountancy, Economics, Finance, General Business, Management,
Marketing, or Paper Science. 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.

MBA DEGREE REQUIREMENTS

The Master of Science program permits the student to specialize in a
specific area of business such as Accountancy, Administrative Services,
Finance, Management, or Marketing. The program is designed primarily
for students who have an undergraduate degree in business administration
or a related field 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 Laboratory Safety.
3. CHEM 506, Chemical Laboratory Safety.
4. CHEM 520, Instrumental Methods in Chemistry and either CHEM
   510, Inorganic Chemistry or CHEM 550, Biochemistry I, or CHEM
   552, Biochemistry I with Laboratory.
5. CHEM 601, Graduate Seminar, (Attendance required every semester).
6. CHEM 700, Master's Thesis (6 hrs.).

The student is required to pass all examinations during the week preceding
each semester or session. New students, unless entering with an
acknowledged deficiency, are required to take all three examinations
before they start classes. Students who fail a qualifying examination must
repeat it when next regularly scheduled and normally are required to
attend the corresponding undergraduate course, if available. Enrollment in a
600-level Chemistry course is not permitted unless the appropriate
qualifying examination has been passed.

The student is required to pass all examinations during the week preceding
the first semester of his/her graduate training in chemistry. To attend departmental
seminars, colloquia, and symposia, and to participate in research within
the department.

COMMUNICATION ARTS AND SCIENCES

The thirty-hour Master of Arts degree program in Communication Arts
and Sciences will be of interest to students desiring a terminal degree or
those contemplating post-graduate study. Students may pursue a
generalist degree program or may choose to emphasize a particular area
of communication. Currently, those areas a student may choose to emphasize are:
communication education, mass communication theory, communication theory, interpersonal communication, and organizational
communication.
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/her educational objectives? Will the graduate curriculum and staff provide a satisfactory educational experience for him/her? Undergraduate records, letters of recommendation, evidence of academic interest and ability, and a personal interview—when possible—are requested of each 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.

Program requirements: 1. A minimum of thirty hours must be completed in communication and cognate courses. Selection is to be made in consultation with the graduate advisor.
2. Each semester the student is enrolled, he/she must consult with the Graduate Advisor.
3. A Master’s Thesis (6 hrs.) is optional.

MASTER OF ARTS IN TEACHING OF SPEECH COMMUNICATION

Sponsored by the Departments of Communication Arts and Sciences and Education and Professional Development, this degree is intended as a generalist program for those students planning to teach at the elementary, middle, or secondary school levels.

Eligibility for Admission: Applicants are expected to have at least a minor in speech communication and to have completed their teacher certification for the provisional certificate. Students must submit three letters of recommendation to the Graduate Advisor, prepare and submit a two-page statement of educational objectives, and meet for an interview with the Departmental Graduate Committee.

Program requirements: 1. Nine hours selected from the following Education Core Courses:
   b. ED 602, School Curriculum, or ED 622 Middle-Junior High School Curriculum
   c. ED 603, Social and Philosophical Foundations
   d. ED 604, Psychological Foundations of Education
2. Fifteen hours of course work in the Department of Communication Arts and Sciences.
3. Six hours of electives from either professional, and/or Communication Arts and Sciences.
4. Consultation with the Graduate Adviser each term the student is enrolled.
5. A Master’s Thesis (6 hrs.) is optional.

Computer Science

John Herman, Chairperson of Advisers
Room 3319, Everett Tower

The thirty-hour master’s program in Computer Science is offered through the Department of Mathematics. The resulting degree is a Master of Science in Computer Science. Students with a strong undergraduate background in Computer Science, including the material covered in MATH 509, may be able to complete the program in twelve months. Other students will probably require more than twelve months.

This Computer Science program is a professional program designed to prepare students to take a position in computer organization and systems development in an industrial corporation, in government service, or in a consulting computer service company. A subsidiary goal is to prepare faculty members to teach computer courses in two-year colleges. Graduates will also be well prepared to undertake more advanced training in Computer Science.

Admission requirements: Candidates for admission to this curriculum must have satisfactorily completed an undergraduate program containing a calculus sequence, a course in abstract algebra or discrete structures and a course covering programming applications at the level of MATH 506. If the student’s undergraduate program does not include these courses or their equivalents, he or she will be required to complete them as an additional program requirement. Applicants must submit Graduate Record Examination scores. Students entering the M.S. program who are not familiar with the PDP-10 system should attend the non-credit workshops on the PDP-10 Monitor Commands and editing languages offered by the WMU Academic Computer Center.

Program requirements: Each student must complete an approved program of thirty hours of graduate work including the following:
1. CS 509, 544, 680.
2. Three approved courses from CS 508, 554, 572, 601, 643, 655, 682.
3. Two approved courses from CS 603, 712, MATH 507, 560, 608, 622, MGMT 564.
4. Enough other electives from MATH and CS courses to make thirty credits with at least fifteen credits at the 600 level. All electives are to be approved, in advance, by the student’s adviser. Courses in categories 2 and 3 above are also eligible as electives.

The performance of each student will be reviewed after the completion of approximately ten credit hours. Students whose performance is not satisfactory will not be allowed to continue in the program.

A final examination covering the student’s program is required. It is the intent of the Department that every graduate of this program, in addition to receiving a strong theoretical grounding, should also be a competent programmer and have practical experience in computer consultation and computer systems. 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.

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 Chairperson or a Program Adviser.

Counseling and Personnel


The Master of Arts degree program in Counseling and Personnel is designed to prepare individuals for positions in counseling and personnel in 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) college 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.

Admission to the Department of Counseling and Personnel is presently based upon undergraduate point hour ratio, educational background, and counseling related experience. 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 professional goal and educational background. A permanent program of studies shall be completed no later than the first semester or session of enrollment.

The curriculum in Counseling and Personnel requires the following:
1. ED 601, Fundamentals of Educational Research. (3 hrs.)
2. An additional three hours of graduate course work offered by departments within the College of Education other than the Department of Counseling and Personnel.
3. A minimum of six hours of cognate courses in areas such as: sociology, psychology, economics, management, and vocational education depending upon educational background, vocational experiences and career objectives.
4. Twenty-three hours in one of the four areas of concentration: C-P 600, Interpersonal Communications Skills Laboratory, 1 hr.; C-P 608, Organization and Principles of Elementary School Guidance, 3 hrs.; C-P 609, Organization and Principles of Secondary School Guidance, 3 hrs.; C-P 611, Introduction to Community and Agency Counseling, 3 hrs.; C-P 612, Student Personnel Services in Higher Education, 3 hrs.; C-P 615, Introduction to Career Development, 3 hrs.;
The Department of Dance offers a thirty-hour Master of Arts degree program in Dance. The program is designed for the student with a bachelor’s degree in dance, or the equivalent, to enhance the student’s development in technique, research, and creative abilities in the art of dance.

Admission requirements:
1. A point hour ratio of at least 3.0 (A=4.0) in an undergraduate dance program.
2. A choreographic and performance audition.
3. A written and oral comprehensive examination in dance.

Program requirements:
1. Ten hours of required courses: DANC 525, Special Studies in Dance History; DANC 548, Dance and the Related Arts; DANC 588, Dance Production; and DANC 620, Seminar in Dance Research and Analysis.
2. Two semesters of one of the following ensemble courses: DANC 602, Jazz Dance Ensemble; DANC 616, Ballet Ensemble; or DANC 623, Contemporary Dance Ensemble.
3. Two of the following courses: DANC 600, Practicum; DANC 625, Special Studies in Choreography; DANC 688, Special Studies in Dance Production.
4. Six hours of approved cognate courses.
5. Either DANC 690, Graduate Recital (6 hrs.) or DANC 700, Master’s Thesis (6 hrs.).
6. Graduate students also are expected to attend or participate in all dance performances sponsored by the Department or the University.

Dance

Janet E. Stillwell, Adviser
Walwood Union

The Department of Education and/or Business Administration bachelor’s degree program and major in earth science or its equivalent and one semester each of college chemistry and physics. Deficiencies in undergraduate major in earth science are in the fields of astronomy, geology, meteorology, and oceanography. Graduates of the program are designed to provide students with a foundation in the fields of astronomy, geology, meteorology, and oceanography. Graduates of the program are employed in teaching secondary schools and junior colleges.

Admission requirements:
1. A Bachelor’s degree with a Secondary Provisional General Teaching Certificate. Students lacking this certification may enroll in the graduate program with the understanding that this requirement will be fulfilled.
2. An appropriate major concentration of subject matter courses in business administration, economics, and/or occupational courses taught in the Distributive Education Department. A minimum of nine semester hours should be in such areas as marketing, salesmanship, retailing, and advertising.

Program requirements: Upon completion of the program, the student must be qualified to hold the general secondary provisional certificate and vocational endorsement as a distributive education teacher-coordinator. The typical program would be as follows:
1. Nine hours of Education core courses.
2. Fifteen hours of Professional Vocational-Technical Courses (Selection should be made in consultation with graduate adviser in Distributive Education Department).
3. Six hours of electives.

Earth Science

Richard N. Passero, Adviser
Room 1125, Rood Hall
W. Thomas Straw
Room 1129, Rood Hall

The Master of Science degree program in Earth Science is interdisciplinary with earth science as a core. Two options are available.

EARTH SCIENCE TEACHING

The Master of Science degree program in Earth Science (Teaching) is designed to provide students with a foundation in the fields of astronomy, geology, meteorology, and oceanography. Graduates of the program are employed in teaching secondary schools and junior colleges.

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.

Program requirements: A minimum of thirty hours is required for the degree, including:
1. Space Science, Regional Geology of the United States, Marine Geology, Studies in Climatology and Meteorology, as available.
2. All students are expected to attend Departmental seminars and are required to give one presentation each year in residence. Students may enroll for credit in GEOL 660 for seminar presentations.
3. Complete a general exploratory examination in earth science covering astronomy, oceanography, meteorology and geology before the end of the first semester in residence.
4. Satisfactory completion of GEOL 700, Master’s Thesis (6 hrs.).
5. Electives in earth science or related disciplines with consent of graduate adviser.
6. Pass a comprehensive oral examination. Failure of the final oral comprehensive examination may be followed by a second oral or a written examination.
EARTH SCIENCE ENVIRONMENTAL

The Master of Science degree in Earth Science (Environmental) permits students to design programs of study, in consultation with the program advisers, that are compatible with the individual's goals. Some remedial work may be necessary for students entering the program with a minimal background in environmentally related courses. The program may be adapted for students with backgrounds in biology, geography, agriculture, geology, junior college science teaching, chemistry, earth science, science education, journalism, landscape architecture, anthropology, and physics. Courses for the program will be drawn from: geology, geography, biology, anthropology, economics, political science, communication arts and science, chemistry, physics, and agriculture.

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

1. Thirty semester hours of graduate credit in the earth and related sciences. Students must have completed two of the following four courses: Geomorphology, Glacial Geology, Environmental Geology, Remote Sensing of the Environment; or complete two of these courses as remedial work.
2. A core of fifteen semester hours in the earth sciences is required, including the remaining two courses from the above four.
3. Satisfactory completion of GEOL 700, Master's Thesis (6 hours).
4. Pass a comprehensive oral examination. Failure of the final oral comprehensive examination may be followed by a second oral or written examination.

Economics

Raymond E. Zelder, Adviser
Room 5075, Friedmann Hall

The Master of Arts degree program in Economics is designed to provide students with a strong foundation in economic analysis combined with the ability to apply theory to contemporary problems. Graduates of the program are employed in industry, government, and teaching. Some graduates continue their formal training in economics, pursuing the Ph.D. degree at other universities. The M.A. degree program in Economics requires a minimum of thirty graduate hours of credit and provides the opportunity for concentration in the following fields: economics theory, banking and monetary theory, labor and industrial relations, international economics, economic systems, economic development, public finance, urban economics, econometrics, mathematical economics, managerial economics, and human resources.

Admission requirements:

1. Satisfactory completion of a minimum of twelve undergraduate hours in economics or in equivalents approved by the graduate adviser.
2. Satisfactory completion of intermediate level courses in microeconomic and macroeconomic theory. Students not meeting this requirement will be admitted with reservation and required to complete satisfactorily ECON 303 and 306.

Program requirements:

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. At least an overall "B" average in the Economics courses that the student takes in an adviser-approved program of study.
3. ECON 603, Advanced Price Theory, and ECON 662, National Income Analysis are required.
4. Pass written and oral comprehensive examination.

Education

The College of Education offers Master of Arts degree programs in Audiovisual Media, Counseling and Personnel, Early Childhood Education, Educational Leadership, Physical Education, Reading, Special Education, Teaching in Community College, Teaching the Economically and Educationally Disadvantaged, and several Curricula in Teaching, including Teaching in the Elementary School and Teaching in the Middle or Junior High School. Descriptions of these programs can be found elsewhere in this section of the Bulletin. Several of these programs, including Teaching in the Community College and eleven of the Curricula in Teaching, are offered by the Department of Education and Professional Development in cooperation with departments in the Colleges of Applied Sciences, Arts and Sciences, and Business.

The 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 community colleges. With the exceptions noted below, students applying for candidacy in the programs within 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 are not required of those interested in leadership positions in higher education and those who enter the Program Leadership curriculum in the Department of Education Leadership.
2. The fifteen hours of undergraduate preparation in professional education are not required in the Counseling and Personnel Services curriculum chosen by individuals interested in the ministry, business counseling, and counseling positions and social services occupations.

Education and Professional Development

OFFICE OF CERTIFICATION, ORIENTATION, AND ADVISEMENT: As a service function to both students and faculty, the College of Education has established within the Department of Education and Professional Development, an Office of Certification, Orientation, and Advisement. This office is located in Room 2305, Sangren Hall. Many individuals have found this service to be a "beginning place" in terms of investigating possibilities, suggestions, and preliminary direction and help regarding the "next step" along the many paths of graduate education available at the University.

AUDIOVISUAL MEDIA


The Master of Arts degree program in Audiovisual Media provides a choice of two different tracks and numerous program opportunities.

TRACK 1 SCHOOL MEDIA SPECIALIST PROGRAM: A planned 30-36* semester hour master's degree program for the person who plans to pursue a career as a building level media specialist in a K-12 educational program. The program results in certification as a school librarian and provides a major emphasis in audiovisual technology and instructional planning.

Admission requirements: Admission to The Graduate College (both programs).

Program requirements: Thirty to thirty-six* hours of graduate credit in the College of Education and the School of Librarianship (for certification and experience) including the following:

1. Design, Production, and Utilization
   - ED 548 (3), 549 (3), 641 (3), LIB 542 (3)
   - (Secondary Certification), or LIB 546 or 617 (3) (Elementary Certification)
2. Curriculum and Collection Development
   LIB 510 (3), 512 (3), 616 (3)
3. Organization, Administration, and Management of Collections
   ED 647 (4), and LIB 631 (3)
4. Research
   ED 601 (3) or 600 (3)
5. Professional Field Experience
   ED 712 (2)
6. Professionalism
   ED 646 (1) and ED 644 (2)

TOTAL: 30-36 S.H.

*Depending on previous course work.
TRACK II AUDIOVISUAL MEDIA: A 30-semester-hour master's degree program for the person who wishes to pursue other media-related career options. For example, many teachers wishing to remain in the classroom elect this program to improve teaching potential by gaining skills in the production, organization, and implementation of media resources and technology. In addition, this program is also intended for educational administrators and others outside public education (e.g., training directors, library professionals, government employees, professionals in the health care fields). The program provides flexibility to meet the needs related to the professional goals of the student.

Admission requirements: Admission to The Graduate College.

Program requirements: Thirty* hours of graduate credit including courses in the following areas:

1. Educational Communication and Technology 11 S.H.
   ED 548 (3), 641 (3), 648 (3), elective (2-3)
2. Management and Administration 4 S.H.
   ED 647 (4)
3. Research 3 S.H.
   ED 601 (3) or 600 (3)
4. Foundations 6 S.H.
   ED 602 (3), 603 (3), 604 (3)
   (Students elect 2 of the 3 courses)
5. Electives 6 S.H.

Students are encouraged to include a minimum of 6 semester hours of work outside of education in their program.

TOTAL 30 S.H.

*ED 548 Audiovisual Media I is a required prerequisite for other courses in the program. If this course is included as a part of the graduate program, the minimum number of credits for graduation becomes 33.

**The courses listed are example experiences frequently included in students' programs.

EARLY CHILDHOOD EDUCATION

Advisers: Dorothy Blatt, Mary Cain, Michael Howard, Rachel Inselberg
Sangren Hall

The thirty-hour Master's degree program prepares professionals to work in early childhood education, parent education, and other programs involving the nurture and welfare of infants and young children from birth to nine years. Individualized programs help to prepare candidates for their personal career goals in public schools or other settings.

Admission requirements:
1. Make application directly to the early childhood faculty of the Department, as well as to The Graduate College. (Application forms are provided upon inquiry to Dr. Cain, 2430 Sangren Hall.)
2. Arrange and hold a personal interview with faculty members.

A limited number of candidates is admitted each April, to begin the program the following summer. Candidates wishing to begin their programs prior to the summer workshop may do so upon permission and advice of an early childhood advisor.

3. Hold an Elementary Teaching Certificate, or present evidence that an approved program for the certificate will be completed at the time of graduation; or
4. Present an acceptable rationale for securing the degree without the certificate, and agree to compensate if necessary for deficiencies in ways required by the candidate's individual program.

Program requirements:
1. Each candidate's program will include a core of courses (ED 606, 607, 608, and 609), to be taken with the candidate's entering group, and to provide common understandings regarding the growth and nurture of young children and the effects of public policy on young children's lives. For some candidates, experiences in program administration and evaluation will also be expected.
2. Each candidate's program beyond the core will be individually designed in consultation with an adviser to provide courses, independent and research studies, and field experiences pointing toward the candidate's individual career goals. Flexibility is stressed in order to meet a variety of interests and objectives.

READING

Advisers: Jim Burns, Joe Chapel, Ron Crowell, Ted Kilty, Bruce Lloyd, Dorothy McGinnis. The Language in Education Center is located in Room 3514 Sangren Hall.

Graduate programs in reading at Western Michigan University prepare educationists with further training and qualifications for advanced positions in education. The program provides a Master of Arts in Reading with a concentration in one of three types of preparation.

ELEMENTARY—One program is designed to assist the elementary classroom teacher improve reading instruction for the classroom or to serve as an elementary school reading teacher. This is the concentration in Teaching Elementary Reading.

SECONDARY—Another program is designed for secondary teachers, college instructors, and/or teachers of adults. The focus is to assist in the improvement of the reading abilities of secondary-aged, college, and adult readers. This is the concentration in Teaching Secondary, College, and Adult Reading.

SPECIAL SERVICES—Finally, a special program is designed to help the prospective special reading teacher improve the reading achievement of students at all grade levels. The Special Services concentration particularly emphasizes diagnostic and therapeutic work.

Admission Requirements: In addition to meeting the regular admission standards of The Graduate College, students wishing to qualify for entrance into the master's program in reading must have completed at least one undergraduate course in the teaching of reading. Those desiring to teach in the field must have or seek appropriate elementary or secondary certification through College of Education programs.

Program Requirements: Thirty-six hours of graduate work are required as a minimum for graduation. These may be selected from the following:

1. Nine hours selected from the following courses in the education core:
   a. ED 601, Fundamentals of Educational Research or ED 600, Fundamentals of Measurement and Evaluation in Education
   b. ED 602, School Curriculum or ED 510 Elementary Curriculum or ED 622, Middle-Junior High School Curriculum or ED 621, Secondary School Curriculum
   c. ED 603, Social and Philosophical Foundations of Education
   d. ED 604, Psychological Foundations of Education
2. The Reading Concentration—Twenty-one hours
   Twenty-one hours in reading, 15 to 18 of which must be in the candidate's selected concentration: elementary, secondary, or special services. Three to six hours may be selected from the various reading electives. All courses must be approved by the candidate's program adviser.
3. Related cognates—Six hours selected from courses outside the College of Education which have been approved by the adviser.

TEACHING IN THE COMMUNITY COLLEGE

Advisers: Owen B. Middleton, William H. Kanzler
Room 2305, Sangren Hall

The focus of this thirty-hour program, which leads to the Master of Arts degree, is the development of professional faculty for community colleges. The main concern of the program is that the academically-able person can also become instructionally efficient.

Admission requirements:
1. An undergraduate major in the academic field of concentration.
2. Evidence of a real interest in working with community college students of a very broad age range.

Program requirements:
1. Seven hours made up of the following professional courses:
   a. ED 600, Fundamentals of Measurement and Evaluation in Education or ED 601, Fundamentals of Educational Research, the choice to be made in consultation with the adviser
   b. ED 602, School Curriculum or ED 510 Elementary Curriculum or ED 622, Middle-Junior High School Curriculum or ED 621, Secondary School Curriculum
2. A minimum of sixteen hours in the student's major
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 THE ECONOMICALLY AND EDUCATIONALLY DISADVANTAGED

Advisers: Carol P. Smith, Room 2442, Sangren Hall
Jess M. Walker, Room 2437, Sangren Hall

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.

Admission requirements: Admission to The Graduate College. Demonstrated interest in teaching economically disadvantaged children.

Program requirements:
1. Thirty hours of graduate credit including the required course of ED 535, Practicum: Sociological and Psychological Foundations of Teaching the Disadvantaged; ED 601, Fundamentals of Educational Research; ED 659, Seminar: Methods and Techniques in Teaching the Disadvantaged; and ED 712, Professional Field Experience.
2. The remainder of the degree requirements 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 goals 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 education problems of the disadvantaged children.

TEACHING IN THE ELEMENTARY SCHOOL

Advisers: Mary Cordier, Richard L. Harring, Cameron Lambe, George Miller

The Master of Arts degree program entitled Teaching in the Elementary School, one of the Curricula in Teaching, is intended to prepare teachers for superior classroom performance. The program will provide opportunities for candidates to explore their roles as teachers in a rapidly changing society and to continue to develop their skills in working with elementary school children. The program affords great flexibility and can be individualized, with the aid and consent of the candidate's adviser, to fit the needs and professional goals of each candidate. The degree requires a minimum of 30 graduate hours.

Admission requirements: Regular admission in The Graduate College.

Program requirements:
1. Possess or be eligible for a valid elementary teaching certificate from the State of Michigan, or its equivalent.
2. Nine hours selected from the following four courses:
   b. ED 602, School Curriculum
   c. ED 603, Social and Philosophical Foundations
   d. ED 604, Psychological Foundations of Education

TEACHING IN THE MIDDLE OR JUNIOR HIGH SCHOOL

William H. Kanzler, Adviser
Room 2305, Sangren Hall

The thirty-hour Master of Arts degree in Teaching in the Middle or Junior High School is designed for teachers who teach (or plan to teach) in grades 4-9 and who wish to improve programs for children in these grades.

Admission requirements: Regular (not probationary or PTC status) admission to The Graduate College.

Program requirements:
1. ED 622, Middle-Junior High Curriculum
2. C-P 580, Principles and Philosophy of Guidance
3. At least 6 semester hours, selected from the following:
4. ED 603, Social and Philosophical Foundations of Education
5. ED 604, Psychological Foundations of Education

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. ED 600, Fundamentals of Measurement and Evaluation in Education or ED 601, Fundamentals of Educational Research
   b. ED 602, School Curriculum
   c. ED 603, Social and Philosophical Foundations
   d. ED 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 in professional education or the major field.

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

Teaching of Art
Adviser: Joseph A. Frattallone
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: Max McKitrick
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 English
Adviser: Robert L. Stallman
Prerequisite: Minor in English

Teaching of Geography
Advisers: Joseph Stoltman, George Vuicich
Prerequisite: None

Teaching of Home Economics
Adviser: Sue Coates
Prerequisite: Major in Home Economics

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

Teaching of Mathematics
Adviser: Robert C. Seber
Prerequisite: Minor in Mathematics

Teaching of Music
Adviser: Robert G. Humiston
Prerequisite: Major in Music

Teaching of the Academic Study of Religion
Adviser: Guntram G. Bischoff
Teaching of Science
Adviser: Paul E. Holkeboer
Prerequisite: Minor in one department of the Science Division

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

Teaching of Speech Communication
Adviser: William E. Buys
Prerequisite: Minor in speech with suitable cognates

Educational Leadership
Advisers: Harold W. Boles, Mary Anne Bunda, James A. Davenport, Richard E. Munsterman, Rodney W. Roth, James R. Sanders, Uldis Smidchens, Carol F. Shaffer, Daniel L. Stufflebeam, William P. Viall, Charles C. Warfield, Donald C. Weaver. Department offices are located in Room 3102, Sangren Hall.

The Master of Arts degree 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 toward a further degree, a student who selects the master’s curriculum should consider the requirements of the advanced degree in making this selection.

Each student will be assigned an adviser when he or she 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/her in outlining an individualized and multi-disciplinary program of studies for him/her to pursue, constituted from departmental and other offerings in these focal areas:

- 8*-13 hrs. in Administration
- 8*-11 hrs. in Human Relations
- 6*-9* hrs. in Concept Formation
- At least 3 hrs. in Research
- 0-3 hrs. in Independent Study

Total: 30 hrs. minimum

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

Curricula available within this degree program include:

Line Administration — intended to prepare a 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.

*Certain career goals within the program may alter the number of hours required in these areas.

English
Robert L. Stallman, Adviser
Room 618, Sprau Tower

MASTER OF ARTS IN ENGLISH

The Master of Arts degree program in English provides at an advanced level a study of literary history, literary theory, and special literary problems. 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 program of study.

Required courses in the program are ENGL 660, Methods of Research; ENGL 661, Seminar; and ENGL 668, Literary Criticism. All other courses in the student’s program are selected by the student and the graduate adviser to complete a coherent thirty semester hour program. 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.

MASTER OF ARTS IN TEACHING OF ENGLISH

The Master of Arts degree program in the Teaching of English is jointly administered by the Department of English and the College of Education. The basic purpose of this degree program is to offer course work in English and teacher education to enhance the student’s teaching abilities in general, and especially in the area of English. Those desiring to enter the program should present a thirty-hour undergraduate English minor (twenty semester hours) with a grade-point average of 3.0. Where appropriate, dependent upon the student’s background and experience, the Department may require more than twenty undergraduate English credit hours before a student is admitted to the Teaching of English program.

Minimal requirements for the Master of Arts degree in the Teaching of English include the completion of nine semester hours of course work in the Department of Education and Professional Development. All other courses in the student’s program of study are selected by the student and the graduate adviser to complete a coherent thirty semester hour program. Normally the student will take eighteen hours of course work in the Department of English. 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
Charles F. Heller, Adviser
Room 332, Wood Hall

MASTER OF ARTS IN GEOGRAPHY

The Master of Arts degree program in Geography provides a solid foundation in the subject and at the same time permits a specialization in one of five areas listed below. The student may adequately prepare for geographic employment in government, planning, industry, teaching, or for pursuit of a higher degree. One emphasis of the program is preparation for planning occupations, where training is provided by course work and by participation in professional field internships. The minimum number of graduate hours for the program is thirty.

Admission requirements: There are no departmental prerequisites for entry into the M.A. program, although experience indicates that social, biological and physical science majors with some geography, or geography majors are best prepared to pursue advanced work. All entering graduate students are required to take three qualifying examinations equivalent to comprehensive examinations in three introductory courses: Economic Geography, Human Geography, Physical Geography. If any of these examinations are failed, then the student will be required to audit that course and earn a B grade or better.

Program requirements:
1. Completion of a minimum of three courses in one of the following areas of specialization:
   a. Community Development and Planning
   b. Economic and Urban Geography
   c. Environmental and Resource Analysis
   d. Physical Geography
   e. A Regional Concentration—Africa, Asia, Europe or Latin America.
2. Completion of 30 hours of approved graduate credits in all specializations (except Community Development and Planning, where 36 hours are required); at least 20 hours to be completed in the Geography Department.
3. Completion of:
   a. Geography 661 (Geographic Research) and Geography 568 (Quantitative Methodology)
   b. Either Geography 560 (Principles of Cartography) or Geography 582 (Remote Sensing of the Environment)
4. Satisfactory completion of GEOL 700. Master's Thesis (6 hrs.).

5. Pass a comprehensive oral examination. Failure of the final oral examination may be followed by a second oral or a written examination.

MASTER OF ARTS IN TEACHING OF GEOGRAPHY

Advisers: George Vuich, Room 326, Wood Hall
Joseph Stoltman, Room 321, Wood Hall

The thirty-hour Master of Arts degree program in the Teaching of Geography is designed to improve the classroom teacher's competencies in the teaching of geography. There are three major objectives: to provide elementary and secondary teachers with a graduate degree option which combines the substantive content of geography and related disciplines with professional development in elementary and secondary education; to provide elementary and secondary teachers with a professional degree which emphasizes the direct relationship between the degree program and the classroom application of program components; and to provide elementary and secondary teachers with the skills and knowledge necessary for providing educationally sound learning experiences for elementary and secondary students.

Admission requirements: There are no prerequisites, although the prospective candidate may want to examine State teacher certification requirements if those have not been fulfilled in an undergraduate program. Prospective candidates are requested to take three diagnostic exams for advising purposes.

Program requirements: The minimal requirements for the Master of Arts in the Teaching of Geography include the following:
1. At least twelve approved semester hours in geography courses offered for graduate credit.
2. Completion of nine approved semester hours of Education core courses, including either ED 600, Fundamentals of Measurement and Evaluation in Education or ED 601, Fundamentals of Educational Research.
3. Completion of six hours of electives with consent of the Teaching Geography adviser.
4. Capstone experience: Each student will culminate the degree program with an internship (GEOG 712) in the Teaching of Geography. In most instances this will be a specifically designed internship in the teacher's own classroom or school building in which elements of educational research and curriculum development instructional strategies are employed within an investigative context. Internships for full-time students will be arranged by the Department of Geography.

Geology

W. David Kuenzi, Adviser
Room 1137, Rood Hall

The Master of Science 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. All students are expected to attend Departmental seminars and are required to give one presentation each year in residence. Students may enroll for credit in GEOL 660 for seminar presentations.
3. A copy of the Graduate Record Examination score in Geology must be supplied to the department before the end of the first semester in residence.
4. Satisfactory completion of GEOL 700, Master's Thesis (6 hrs.).
5. Pass a comprehensive oral examination. Failure of the final oral comprehensive examination may be followed by a second oral or a written examination.
6. Successful completion of an approved rock-oriented field course if not completed in the student's undergraduate program.

Gerontology

Ellen Page Robin, Adviser
B108 Henry Hall

Western Michigan University offers a multidisciplinary Graduate Specialization in Gerontology through its Gerontology Program. This program, designed for graduate students in master's or doctoral programs who wish to add Gerontology to their degree programs, consists of 50 hours of course work, field experience, and/or thesis/dissertation credit. Occasionally the specialization will require some work beyond that required for most master's or doctoral degrees. A certificate of completion of the Graduate Specialization in Gerontology will be awarded at the completion of the course study.

Admission requirements: Students must be admitted to The Graduate College and to a regular master's, specialist, or doctoral degree program in the University and must apply for admission to the graduate Specialization in Gerontology Program through the Gerontology Program Office. Persons who wish to add this specialization to already completed graduate degrees may also apply for admission after being admitted to The Graduate College.

Program requirements: In addition to completing the requirements of the degree program pursued by the student, persons seeking the Graduate Specialization in Gerontology must complete a course of study totaling 20 semester hours. Some required courses for the graduate specialization may be integrated with regular degree requirements. Three courses are required: Blind Rehabilitation 599, Gerontology, 2 credit hours; Health and Human Services 680, Multidisciplinary Seminar in Gerontology, 3 credit hours; and Health and Human Services 662, Program Planning and Development in Gerontology, 3 credit hours. Up to six hours of thesis/dissertation or field experience from the student's graduate department may also be counted provided that the thesis/dissertation topic or the field placement is certified as relevant to Gerontology by the Gerontology Adviser.

The remainder of the 20-hour requirement will be acquired through elective courses chosen from a list of approved courses available through the Gerontology Program Office.

History

H. Nicholas Hamner, Adviser
Room 4045, Friedmann Hall

The thirty-hour Master of Arts degree program in History is highly individualized and flexible. It is designed to give students an advanced understanding of the characteristics, institutions, and forces of society; to further the preparation of students planning to teach in secondary or higher education; to qualify students for further graduate work in history; and to help prepare students for such fields as museum/archives work, law, the foreign service, the ministry, and journalism.

Admission requirements: Either completion of thirty hours of undergraduate credit in the Social Sciences and closely related subjects, including at least fifteen hours of History, or possession of other preparation accepted as the equivalent by the departmental graduate committee.

Program requirements:
1. Earn thirty hours of graduate credit, of which twenty hours must be in History and up to ten hours may be earned in courses of other departments which have been 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
Sue Coates, Adviser
Room 3029, Industrial and Engineering Technology Building

MASTER OF ARTS IN 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 Home Economics. The degree may be used as a foundation for continued graduate work leading to a doctoral degree at another institution.

The program is planned for 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; the Home Economist in Business who may desire extra work in specific areas; the Home Economist in Extension; the School Lunch Manager; and the Teacher in Home Economics who may have been employed and desires to bring herself/himself up to date in Home Economics subject matter or for college teaching.

Program requirements:
1. Complete a total of twenty hours in Home Economics in two or more areas at the graduate level, including a minimum of two hours of seminar credit.
2. Complete a minimum of ten hours at the graduate level in allied areas (e.g., Sociology, Psychology, Economics, Biology, Chemistry, Education, Art).

MASTER OF ARTS IN TEACHING OF HOME ECONOMICS

The Master of Arts degree in the Teaching of Home Economics is designed for a person with a bachelor's degree in Home Economics Education. The minimal requirements include the completion of nine hours of course work offered in the Department of Education and Professional Development, fifteen hours in courses in Home Economics, and six hours of electives.

Program requirements:
1. Complete fifteen hours in courses in Home Economics.
2. Complete nine hours of Education core courses: ED 601, 602, 603, or 604.
3. Complete six hours of electives.

Industrial Education
Charles G. Risher, Adviser
Room 2049, Industrial and Engineering Technology Building

The Departments of Industrial Education and Education and Professional Development offer a thirty-hour Master of Arts degree program in the Teaching of Industrial Education. The purpose of this degree program is to offer advanced coursework in education and industrial education to improve teaching capabilities in general, and industrial education competencies specifically. The degree program is flexible to provide preparation for administrators, supervisors, coordinators, and other specialized positions in Vocational-Technical programs.

Admission requirements: An undergraduate minor of twenty semester hours in industrial arts, industrial education or vocational-industrial education, plus professional preparation in teacher education, including directed or supervised student teaching.

Program requirements:
1. Completion of nine semester hours from Education core courses.
2. Completion of fifteen semester hours from Industrial Education Department (IED 545, 641 or 615, and 643 are required). Remaining nine hours of coursework to reflect the student's career goals.
3. Thesis or non-thesis option (completion of six semester hours of coursework directed toward career goals, selected by the student, with the approval of the graduate adviser).
4. A maximum of six semester hours in readings, independent study, workshops, and approved 300- and 400-level courses may be elected in the total master's program.

Languages, Modern and Classical
Roger L. Cole, Chairperson of Advisers
Room 416, Sprau Tower

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

Admission requirements: An undergraduate major of 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 (6 hrs.). 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. (The written examination is not required if a Master's Thesis is presented.)

Librarianship
Jean E. Lowrie, Eleanor R. McKinney, Advisers
Room 2080, Waldo Library

The School of Librarianship has a three-fold purpose: to provide quality education for present and prospective members of the library profession; to initiate research and to conduct studies which advance the knowledge of librarianship; and to promote the study and application of new ideas and knowledge of libraries and library problems. To achieve this purpose, the School of Librarianship provides programs which build on the educational backgrounds and experience of students and which afford the student an opportunity to understand the intellectual substance and ethical concerns of the discipline; contribute to the fundamental and applied knowledge of the discipline through research effort and service activities; provide for the continuing educational needs of those beyond their period of formal professional education; and encourage students to develop their knowledge of disciplines other than librarianship and to relate that knowledge of librarianship.

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. The degree of Master of Science in Librarianship is awarded at the completion of thirty to thirty-six semester hours of graduate study.

Specialization is available for those interested in school 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.

Additional information and the School's application form are contained in the Bulletin of the School of Librarianship, which may be requested from the School's office in Waldo Library.

Admission requirements: In addition to the general admission requirements of The Graduate College, admission to the School of Librarianship requires a bachelor's degree with a minimum grade point average of 3.0 (B average) for courses taken in the last two years of undergraduate study. However, a person who cannot meet this requirement and has compensating qualifications may be given special consideration.

Applicants must also complete the admission form of the School of Librarianship, available from the School's office in Waldo Library. This application must include the names and addresses of three persons who are able to give information concerning the verbal facility, intellectual capacity, personal and professional promise, and motivation of the applicant. Each applicant must also accompany his/her application with a statement of his/her reasons for desiring to enter the field of librarianship. A personal interview may be required.

Program requirements:
1. Thirty to thirty-six hours of approved graduate courses, with a minimum of twenty hours in library science at the 600 level. A candidate without previous study in librarianship will be expected to elect LIB 510, 512, 530, 600, 622 and 629, unless he/she can pass com-
opportunities. or about the graduate program as a whole, should contact the
Department Chairperson, or one of the Program Advisers.
2. Candidates preparing for school media center service must meet the
teacher certification requirements of the state in which they wish to be
employed.

Mathematics

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
Computer Science, the Master of Science in Operations Research, the
Specialist in Arts in Mathematics, and the Doctor of Philosophy in
Mathematics.

MASTER OF ARTS IN MATHEMATICS
 Anthony Gioia, Chairperson of Advisers
 Room 3319, Everett Tower

The Master of Arts degree program 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 ad-
vanced study, and provides additional training for teachers of mathematics
and students seeking employment in industry.

Admission requirements: To gain admission to this program the
student must have completed, with satisfactory grades, an undergraduate
major in mathematics. This major must ordinarily include a course in
modern algebra, and a course in advanced calculus or real analysis. If the
student's undergraduate program in mathematics does not meet approved
standards, the student may be required to elect additional courses or
otherwise satisfy the requirements of the department.

Program requirements:
1. 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.
2. 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.
3. Pass the Final Master's Examination in the final term of his/her
master's program. This examination will cover the 600-level material
in the student's program.

Students with a strong undergraduate background in mathematics may
be able to complete this program in a twelve month year. However, most
students will require more than one year.

The specific requirements for an M.A. in Mathematics with con-
centration 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
or the M.A. program in the Teaching of Mathematics should consult the
requirements listed under those headings.

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

MART OF ARTS IN TEACHING OF MATHEMATICS
 Robert C. Seber, Adviser
 Room 3319, Everett Tower

The Master of Arts degree program in the Teaching of Mathematics is
offered cooperatively by the Mathematics and Education and Professional
Development departments. It is intended to provide secondary school
mathematics teachers with opportunities to prepare themselves for
superior classroom performance. They can do this by developing a broader
and deeper understanding of mathematics, educational processes, and
their role as teachers in American educational systems.

Admission requirements: In addition to the general admission
requirements of The Graduate College, admission to this curriculum
requires a bachelor's degree with at least a teaching minor in mathematics
equivalent to the one offered at Western Michigan University and at least
fifteen hours of undergraduate work in professional education or its
equivalent.

Program requirements:
1. At least fifteen approved semester hours in mathematics courses of-
fered for graduate credit.
2. Nine semester hours by selecting three from the four three-hour
courses:
   ED 600, Fundamentals of Measurement and Evaluation in Education,
or ED 601, Fundamentals of Educational Research
   ED 602, School Curriculum
   ED 603, Social and Philosophical Foundations
   ED 604, Psychological Foundations of Education
3. Approval of the Teaching of Mathematics curriculum adviser.
   In meeting these program requirements an effort is made to select
courses that deal with concepts and skills related to central themes in
secondary school mathematics programs. These themes are given sub-
stance in courses that deal with topics enabling students to review and
build on their previous course work, to explore new areas, to develop
thorough understandings of concepts that are initiated in secondary school
mathematics courses, and to achieve a high level of mastery of skills
associated with these concepts.

The Department of Mathematics offers opportunities for financial
support of graduate students through Graduate Assistantships and
Fellowships. Individuals desiring further information about such op-
portunities, or about the graduate program as a whole, should contact the
Mathematics Department Office (Room 3319, Everett Tower).

Medieval Studies
 Otto Gründler, Adviser
 The Medieval Institute
 Hillside West

The Master of Arts degree program in Medieval Studies is designed to
provide 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.

Program requirements: The requirements for the degree are as follows:
1. 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.
2. The preparation of an acceptable Master's Thesis (6 hrs.) under the
direction of a thesis advisory committee.
3. Demonstration of the ability to read Latin and either German or
French.
4. Pass the comprehensive examination given by a committee appointed
by the Director of the Medieval Institute, in consultation with the
student's thesis advisory committee.
Music
Advisers: Robert G. Humiston, Room 7, Maybee Hall
Brian Wilson, Room 12, East Hall

MASTER OF MUSIC

The Master of Music degree program is designed to enhance the student's teaching, performing, research, and creative abilities in music. The Department of Music offers course work leading to a Master of Music degree in seven different areas of concentration: Applied Music, Composition, Conducting, Music Education, Musicology, Music Theory, and Music Therapy. Western's Department of Music is accredited by the National Association of Schools of Music and all areas of concentration carry curriculum approval from that accreditation association. The Music Therapy program is certified by the National Association of Music Therapists.

Admission requirements: A Bachelor of Music degree, or equivalent, is required for admission, including sixty semester hours of acceptable work in music. Students are admitted to graduate study in music on the basis of transcripts. Exceptions to admission requirements may be granted if competency can be demonstrated through Preliminary Examinations. Admission to the graduate program does not imply the student will be permitted to pursue a specific area of concentration (applied music, composition, etc.). Program of study will not be determined until Preliminary Examinations are taken and the student has completed 6-10 semester hours of course work. Until that time the right is reserved to withhold the recommendation for degree candidacy if the student has not demonstrated sufficient maturation and musicianship.

Preliminary Examinations are administered upon entry to the graduate music program. Areas of examination include performance, music history, music theory, music therapy, functional piano, and conducting (including aural skills and instrumentation techniques). The areas in which the student will be tested are determined by the choice of area of concentration. Composition students must submit an original composition in one of the major forms for review by the faculty.

Program requirements: The graduate student adviser in the Department of Music works closely with each 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. The student's needs are determined by an evaluation of the results of Preliminary Examinations and a review of the first 6-10 semester hours of course work taken. After this evaluation and review the graduate adviser provides information to the student regarding probable success in the degree program and any time limitation that may apply to the student's completion of degree requirements. Program of study in each of the six areas of concentration are as follows:

APPLIED MUSIC (Minimum of 30 hrs.):
1. Required courses:
   MUS 610, Introduction to Research in Music
   MUS 600, Applied Music
   MUS 690, Graduate Recital (includes oral exam)
2. Cognate music studies: composition, music education, history, theory (9-12 hrs.)
3. Electives

COMPOSITION (Minimum of 30 hrs.):
1. Required courses:
   MUS 610, Introduction to Research in Music
   Music Composition 562, 563, 662
   MUS 700, Master's Thesis (6 hrs.) in Composition
   (includes oral exam)
2. Cognate music studies: applied music, music education, history, theory (9-12 hrs.)
3. Electives to make a total of at least 30 semester hours.
4. Proficiency in keyboard must be demonstrated but course work may not apply to degree.

CONDUCTING (Minimum of 30 hrs.):
1. Required courses:
   MUS 610 Introduction to Research in Music Conducting 530, 531, 600
   MUS 664 Form in Music

MUSIC EDUCATION (Minimum of 30 hrs.):
1. Required courses:
   MUS 610, Introduction to Research in Music
   MUS 642, Philosophy and History of Music Education
   MUS 650, Seminar in Music Education
   MUS 691, Special Project in Music Education, or*
   MUS 681, Research in Musical Behavior, or*
   MUS 700, Master's Thesis*
2. Electives in music education (5-8 hrs.)
3. Cognate music studies: applied music, composition, theory, history (9-12 hrs.)
4. Electives

(*Every student is required to register for one of these culminating projects, each of which includes an oral exam.)

MUSIC THEORY (Minimum of 30 hrs.):
1. Required courses:
   MUS 610, Introduction to Research in Music
   Music 600-level courses in Counterpoint, Form, Orchestration, and the Teaching of Theory (6-8 hrs.)
   MUS 700, Master's Thesis (includes oral exam)
2. Cognate music studies: applied music, composition, music education, history
3. Electives
4. Proficiency in keyboard must be demonstrated but course work may not apply to degree.

MUSICOLOGY (Minimum of 30 hrs.):
1. Required courses:
   MUS 610, Introduction to Research in Music
   MUS 670-671, Seminar in Musicology
   Electives in Music Literature, Medieval or Renaissance Music and/or Collegium Musicum (3-6 hrs.)
   MUS 700, Master's Thesis (includes oral exam)
2. Cognate music studies: applied music, composition, music education, theory (or) non-music humanities area (9-12 hrs.)
3. Electives
4. Proficiency in keyboard and in German must be demonstrated but course work may not apply to degree.

MUSIC THERAPY (Minimum of 30 hrs.):
1. Required courses:
   MUS 610, Introduction to Research in Music
   MUS 680, Seminar in Music Therapy
   MUS 681, Research in Musical Behavior
   MUS 700, Master's Thesis (includes oral exam) (6 hrs.)*
   MUS 712, Professional Field Experience (2 hrs.)*
2. Elective music courses (6-9 hrs.)
3. Non-music electives—selected from one of the following departments and including at least one course in statistics: Anthropology, Blind Rehabilitation and Mobility, Counseling and Personnel, Mathematics, Occupational Therapy, Psychology, Sociology, Special Education, Speech Pathology and Audiology, Education and Professional Development (6-9 hrs.)
Occupational Therapy

M. Joy Anderson, Adviser
Room 102, West Hall

The graduate-professional program in Occupational Therapy is designed to prepare the student for the profession of Occupational Therapy and leads to the Master of Occupational Therapy (MOT) degree. This two calendar year program of combined academic and field education (approximately sixty-six semester hours) is intended for the student who has a baccalaureate degree in a curriculum other than Occupational Therapy. This is an accredited program and graduates are qualified to take the American Occupational Therapy Certification Examination.

Admission requirements:
1. Ten to twelve months of work experience in any area, following receipt of the baccalaureate degree.
2. Evidence of personal qualifications considered desirable for successful occupational therapy practice. These include motivation for occupational therapy, maturity, ability to communicate, and previous experiences.
3. Prior academic course work in abnormal psychology, statistics, human physiology, and child development or human growth and development is necessary and will be a criterion in the selection process for admission.
4. A point hour ratio of at least 2.6 (A = 4.0) in the credits completed in the last two years of undergraduate work.

Program requirements:
1. Completion of approximately sixty-six semester hours in the following areas:
   a. Thirty-six hours in basic occupational therapy education.
   b. Thirty semester hours of graduate courses which include the following:
      1) Occupational Therapy
         O-T 633, Administration of Occupational Therapy
         O-T 686, Seminar in Occupational Therapy
         O-T 697, Supervision and Teaching Experience in Occupational Therapy
         O-T 710, Independent Research
         O-T 712, Professional Field Experience (off-campush internship of six months taken prior to last semester on campus).
      2) Cognates in related fields or areas of specific interest selected with the advice and consent of the graduate adviser.
      3) ED 600, Fundamentals of Measurement and Evaluation in Education, or ED 601, Fundamentals of Educational Research
   c. Three semester hours of statistics must be included if not taken at the baccalaureate level.
2. The student must manifest emotional and behavioral characteristics which, in the judgment of the departmental staff, will not jeopardize his/her professional competence.
3. All basic and graduate occupational therapy courses in this program are sequentially scheduled which necessitates initial enrollments in Spring Sessions only.

Applications for admission to this program will be accepted from September 1 to November 1 of each year for the class beginning in the Spring Session of the following year. Administration notification will be on or about January 1 of each year.

Operations Research

Franklin K. Wolf, Program Director
Room 2007, Industrial and Engineering Technology Building

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 or her professional field. Participating are the Departments of Economics, Industrial Engineering, 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 or her 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 or her prior experience, both formal and practical, and his or her career goals, and must be approved by the Program Director and the adviser for the Operations Research program in the department from which the student received his
or her undergraduate degree. An approved program must meet the following requirements:

1. A minimum 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 minimum 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 or her project and an examination covering the basic areas in which he or she has studied.

**Paper Science and Engineering**

**Richard B. Valley, Adviser**
Room 2650, McCracken Hall

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 and for a complete recycled fiber pilot plant installation. 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:

1. A minimum of fifteen hours of paper science selected from these twenty-four hours of offerings: Pulp and Paper Engineering 560, Instrumentation and Process Control 590, Colloid Chemistry 600, Paper, Printing, and Ink 620, Coating Rheology and Film Formation 640, Mechanics and Optics of Paper and Fibers 660, High Polymer Topics 680.
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 paper science, chemistry, physics, engineering, or mathematics departments, selected with the consent of the graduate adviser.

**Physical Education**

**Advisers:** George G. Dales, Room 210, Gary Center
Dr. Ruth M. Davis, Room 216, Gary Center
Jack Jones, Room 220, Gary Center
Dr. Roger Zablak, Room 210, Gary Center

The Department of Health, Physical Education, and Recreation offers a Master of Arts degree program which prepares teachers, coaches, and administrators to assume leadership roles in the following areas of emphasis: Administration, Coaching and Sports Studies, Exercise Science, Motor Development, and Athletic Training.

**Admission requirements:** To be admitted to the master's degree program in this department, the Graduate College admission standards must be met and the graduate student must have successfully completed an undergraduate major or minor in Physical Education, Health, Recreation, Athletic Training, or Coaching.

**Program requirements:** Each graduate student is expected to show competence in at least three professional areas: research, curriculum, socio-cultural or psychological foundations. Such competence will normally be provided through seven to nine graduate semester hours of coursework in the following courses: (1) PEGR 690 or ED 601 (required) and (2) two courses from PEGR 645 or ED 602, PEGR 650 or ED 603, and PEGR 691 or ED 604. The Master of Arts degree in the Department of Health, Physical Education and Recreation requires the successful completion of a minimum of thirty graduate credit hours beyond the bachelor's degree in one of the following areas of emphasis: Administration, Coaching and Sports Studies, Exercise Science, Motor Development, and Athletic Training.

Master's degree candidates are required to complete a comprehensive, integrated capstone experience which can be met through (1) PEGR 700, Thesis; (2) Advanced Seminars PEGR 648, 668, 680, 698; (3) PEGR 710, Independent Research; or (4) PEGR 712, Professional Field Experience. Graduate students in the Athletic Training emphasis area seeking certification must meet the National Athletic Trainers Association standards.

**Physics**

**L. D. Oppenheirr, Adviser**
Room 1124, Everett Tower

The Department of Physics offers a graduate program leading to the Master of Arts degree in Physics. Thirty semester hours of graduate credit are required. The objective of the program is to enable students to acquire the knowledge and technical skills needed in physics-related occupations and in graduate study at the doctoral level. Participation in research is an important part of the program and occurs in any of three major fields:

1. Theoretical physics—for example, classical liquids, nuclear structure, nuclear reactions, and classical fields.
2. Experimental physics—for example, atomic physics, optics, optical spectroscopy, nuclear magnetic resonance, solid state physics (including optical properties of solids), and nuclear physics. Equipment available for experimental research includes a 50 keV proton accelerator, a vacuum ultraviolet spectrometer, an NMR spectrometer, and the only 12 MeV tandem Van de Graaff accelerator in Michigan.
3. Computer and instrumentation physics, including the use of PDP-10 and PDP-15 computers and assorted microprocessor-based microcomputers.
4. Or any combination of these, or some interdisciplinary areas.

**Program requirements:** The thirty semester hours of graduate credit must include the following:

1. Thirteen hours of required courses in physics, namely: Research Seminar 610, 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. Eleven 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.).

The thesis may be either theoretical or experimental in nature and is accomplished under the guidance of a committee of the graduate faculty in physics. The topic of the thesis may be based on one of the research areas noted above, or it may be based on some other area of physics chosen by the student and approved by the thesis committee. The committee may require an oral defense of the thesis before approving it for submission to the Graduate College.

Graduate students are required to attend the Physics Research Lectures, which constitute 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**

**Kenneth A. Dahlgren, Adviser**
Room 5015, Friedmann Hall

The Master of Arts degree program in Political Science seeks to prepare the student to function effectively as a citizen, and it offers the student a variety of options in order to prepare him/her for different career goals: (1) positions in the public service and quasi-public agencies; (2) further professional training in Political Science and related professions, as Law; (3) teaching positions in high schools and community colleges; (4) general positions in the business world.
Master's Degree Requirements

Admission requirements: 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.

Program requirements: 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 options.

Requirements in the two options may not be interchanged.

Requirements for the thesis option:
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/her program.
2. Satisfactorily complete PSCI 564, Political Inquiry and Analysis. In addition, the department strongly recommends that the student consider enrolling in 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/her political science program.

Requirements for the non-thesis option:
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/her program.
2. Satisfactorily complete PSCI 564, Political Inquiry and Analysis. In addition, the department strongly recommends that the student consider enrolling in PSCI 590, Research Methods.
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 written and oral field examinations covering the student's political science program.

Psychology

Galen J. Alesis, Program Coordinator
Candy White, Program Information Room 258, Wood Hall

The Psychology Department offers course work leading to a Master of Arts degree in five areas of concentration: Experimental Psychology, Applied Behavior Analysis, Clinical Psychology, Industrial Psychology, and School Psychology. While much of the course work is eclectic, the Department has a strong behavioral orientation, which tends to influence all of the Department's programs. The master's program is designed primarily for the student with a bachelor degree in psychology or related discipline to prepare the individual to assume a professional role in a variety of mental health services. A research-oriented degree is also offered for a limited number of students.

Graduate students receive a personal appointment to a faculty member in an apprenticeship role. Such arrangements facilitate the development of a personal program to accommodate the academic and professional interests of the student and to utilize the full range of research and practicum facilities within the University. The student is encouraged to participate in the daily conduct of the Department's academic program and research activities.

Admission requirements: Applications are reviewed in terms of five sources of information, although the performance measures of any one criterion is not sufficient to guarantee admission or to dictate denial of the application. Applicants are assumed to have substantial training in Psychology at the undergraduate level with a minimum of 18 hours of credit in Psychology, including introductory statistics. Applicants may be required to complete additional courses following matriculation in order to satisfy these basic requirements.

Applicants to the master's degree program in experimental or applied behavior analysis, must have completed a minimum of eight hours of basic experimental laboratory courses including experimental analysis and experimental design. Equivalent courses at Western Michigan University are PSY 352 and PSY 362.

Applicants to the master's degree program in applied behavior analysis are expected to show evidence of some professional experience. Applicants without any applied work may be required to complete an additional three hours of internship following matriculation.

The application procedure includes submission of:
1. Completion of a major or minor in psychology
2. Graduate Record Examination: verbal & quantitative aptitude test
3. Miller Analogies test score
4. Three letters of recommendation
5. An autobiography describing academic interests and professional goals.

Individuals applying for Fall admission and requesting financial assistance should apply by February 15. Applicants should apply directly to both The Graduate College and the Department of Psychology.

Program requirements:

Experimental Psychology: The experimental program requires a minimum of thirty hours of credit including PSY 700. Masters Thesis (6 hrs.), six hours of electives selected from one or more fields related to psychology, and eighteen credit hours in basic behavioral processes, laboratory techniques, and data analysis including PSY 634. Advanced Statistics. Areas of concentration include animal learning, operant behavior, physiological psychology and perceptual processes. This is a restricted program designed to prepare a student for doctoral training in experimental psychology.

Applied Behavior Analysis: The applied behavior analysis program requires a minimum of thirty-six hours of credit including PSY 700. Masters Thesis (6 hrs.), six hours of cognates from one or more fields related to Psychology, and twenty-four credit hours in Psychology. These twenty-four hours include three hours of PSY 634. Advanced Statistics; six hours of PSY 712, Professional Internship; three hours of PSY 650, Legal and Ethical Issues; and twelve hours of credit in Applied Behavior Analysis from selected courses in behavior theory, technology, and applications. The program is designed to train students to assume professional roles in a variety of mental health services.

Clinical Psychology: The clinical program requires a minimum of forty-eight hours including twelve hours of PSY 712, Professional Field Experience; six hours of electives from one or more fields related to Psychology; and thirty hours of training in Psychology. These thirty hours consist of courses from selected areas of study which include professional problems (3 hrs.), behavior assessment and diagnosis (6 hrs.), methods of behavior change (6 hrs.), statistics and research methods (9 hrs.), and electives (6 hrs.) selected in conference with an adviser. The areas of specialization may encompass a broad spectrum of clinical theory and application, or the theory and techniques of behavior modification. An appropriate substitute for the thesis included in the research methods may be arranged with the adviser. The clinical program is designed primarily for students who intend to assume professional roles in mental health services, although the program can accommodate persons interested in pursuing a doctoral degree in the clinical area at another University.

Industrial Psychology: A minimum of thirty-six credit hours will include twelve to fifteen core hours in personnel selection, statistical analysis, or human motivation in industry. Approximately nine additional hours in psychology and six to nine hours outside of the Department may be directed toward specialization in personnel training, counseling, consumer or organizational psychology. A Master's Thesis (6 hrs.) is required of persons planning to pursue a Ph.D. in industrial psychology, while those with professional experience may 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 the adviser for the industrial psychology program.

School Psychology: Applicants are admitted to the School Psychology Specialist degree program and receive the Master of Arts degree within the sequence. The master's degree program requires a minimum of thirty-five credit hours including six hours of electives from one or more fields related to School Psychology, as well as written validation of the required School Psychology competencies, or coursework including PSY 517, 519, 634, 683, 688, and 668, Behavior Assessment and Counseling. Multiple practicum and other school setting experiences are required within the apprenticeship training model adopted by the program. Apprentices at this degree level must basic educational, behavior analysis and research skills, and the methods for applying them directly with clients within educational settings. Study is focused on learning characteristics of
mainstream and exceptional children, as well as careful analyses of the educational environments in which these children are required to perform. Educational and behavioral techniques are mastered which focus on constructing educational environments to maximize each child's personal set of learning characteristics. The master's program is considered to be an integral part of the Specialist in School Psychology degree program, and basic preparation for doctoral training in School Psychology at other Universities.

**Public Administration**

F. J. Mortimore, Adviser  
Center for Public Administration Programs  
B-1, Hillside Building-East

The multi-disciplinary graduate program in Public Administration, leading to a Master of Public Administration (MPA) degree, is designed to provide advanced professional training for mid-career public employees and pre-professional preparation for recent college graduates. While the program content emphasizes administration of local, regional and state government agencies, it is sufficiently flexible to meet the need for training in a wide variety of career positions with public and voluntary agencies at the national and international level also. This program allows the student to fully utilize and further develop his or her special talents, skills and experience while acquiring the knowledge appropriate for administrative leadership positions in public and public-related agencies.

Reflecting the multi-disciplinary nature of this professional field, the Center for Public Administration Programs draws upon the diverse talents of highly qualified faculty specialists in several colleges and numerous departments throughout Western Michigan University. By this means the Center finds it possible to offer those enrolled in the MPA program a comprehensive grounding in public administration principles and practice while also permitting a substantial degree of specialization within a principal sub-area of this field.

**Admissions requirements:** Anyone who possesses the minimum qualifications for degree status admission to The Graduate College (a 2.6 grade point average during the last two years of undergraduate study) is eligible to be considered for admission to the MPA degree program—regardless of the academic discipline in which previous study has been undertaken. Actual acceptance into the program, however, is competitive; previous academic accomplishments, a history of professional success in increasingly responsible positions for pre-career students, career aspirations, and other factors indicating seriousness of purpose will all be considered when those to be admitted are selected from among those who have applied for admission.

**Program requirements:** The Master of Public Administration degree requires between thirty-nine (39) and forty-five (45) semester hours of study for completion; this credit hour requirement can be reduced in certain cases by the Graduate Adviser when, through previous academic study, the graduate candidate has attained skills deemed essential to the professional administrator. Full-time graduate students should find it possible to complete the classroom portion of MPA requirements within a period of one calendar year while part-time and mid-career degree candidates should find it possible to complete requirements for the MPA in approximately 24-36 months. Ordinarily, pre-career candidates (recent college graduates) will be required to complete all four of the following program components, while mid-career candidates (those with some previous professional experience) will be required to complete only the first three components listed below:

2. A course in **organization theory**.
3. A technical core providing skills in fund accounting, budgeting, public finance, statistics, administrative law, public personnel administration, and electronic data processing.
4. An area of specialization or concentration which provides each candidate an opportunity to develop an in-depth understanding of some particular type of government activity, such as land use planning, natural resource management, delivery of social services, personnel administration, budgeting, or urban administration.
5. **Professional practice**, consisting of a 3-4 month internship experience for pre-career students with some agency of city, county, regional, state or federal government.

Numerous foreign students from Asia, Africa, Latin America, and the Middle East have been attracted to this MPA degree program; courses in development administration will be substituted for selected professional core and technical core courses by international students who wish to pursue careers with their own governments or with international agencies.

**Religion**

Guntram G. Bischoff, Adviser  
Room 3090, Friedmann Hall

The Master of Arts degree program in the Teaching of the Academic Study of Religion is offered by the Department of Religion in cooperation with the Department of Education and Professional Development. The degree is designed to provide professional training for graduate students and mid-career public school teachers with a special interest in the teaching of the academic study of religions in the secondary schools. The program is highly flexible, offering three distinct options for experienced teachers without prior training in religion, for undergraduate majors and minors in religion, and for undergraduate teaching minors in the academic study of religions. Each specific program of courses will be selected by the student with the approval of the departmental adviser. All program options total a minimum of thirty credit hours.

**Admission requirements:** In addition to the general admission requirements of The Graduate College, admission to this curriculum requires that:

1. All applicants must hold a provisional teaching certificate or be willing to obtain same by the time they receive the degree.
2. Applicants without teaching experience must request two letters of reference from faculty with whom they have done course work.
3. Applicants with teaching experience must request one letter of support from supervisory personnel in their present or former school system.
4. All applicants submit a brief statement of intent including a vita, reasons and qualifications for entering the program, and plans regarding implementation and completion of the program. (All letters and materials should be sent to the departmental adviser.)

**Program requirements:**

1. Nine hours selected from the Education core courses:
   b. ED 602, School Curriculum
   c. ED 603, Social and Philosophical Foundations
   d. ED 604, Psychological Foundations of Education
2. Completion of one of the following three optional plans:
   a. REL 621, Introduction to the Academic Study of Religions (2 hours)
   b. Three courses chosen from the following, one of which must be REL 500, Historical Studies; REL 510, Morphological and Phenomenological Studies; REL 520, Methodological Studies; and REL 530, Constructive Studies (12 hours)
   b. REL 622, Seminar-Practicum on the Teaching of the Academic Study of Religions in the Public Schools (3 hours)
   c. REL 710, Independent Research (Curriculum Project of 4 hours)
   d. REL 710, Independent Research (Curriculum Project of 4 hours)
   e. For undergraduate majors, minors, and teaching minors in religion
   a. REL 500, Historical Studies; REL 510, Morphological and Phenomenological Studies; REL 520, Methodological Studies; and REL 530, Constructive Studies (12 hours)
   b. REL 622, Seminar-Practicum on the Teaching of the Academic Study of Religions in the Public Schools (3 hours)
   c. REL 710, Independent Research (Curriculum Project of 6 hours)

3. Three courses chosen from the following, one of which must be:
   a. Three courses chosen from the following, one of which must be REL 500, Historical Studies; REL 510, Morphological and Phenomenological Studies; REL 520, Methodological Studies; and REL 530, Constructive Studies (12 hours)
   b. REL 622, Seminar-Practicum on the Teaching of the Academic Study of Religions in the Public Schools (3 hours)
   c. REL 710, Independent Research (Curriculum Project of 6 hours)
   d. REL 710, Independent Research (Curriculum Project of 6 hours)
   e. REL 710, Independent Research (Curriculum Project of 6 hours)

**OPTION III** — Cognate option for experienced teachers

a. Three courses chosen from the following, one of which must be
Science Education

The Science Division (Departments of Biology, Chemistry, Geography, Geology, Physics, and Psychology) of the College of Arts and Sciences and the Department of Education and Professional Development offer a graduate program leading to the Master of Arts in the Teaching of Science. The program is designed for both elementary and secondary school science teachers who wish to expand their preparation in the sciences and to enhance their teaching abilities. It is possible to specialize in any of the above areas or to take courses from more than one of the sciences listed above, providing the proper prerequisites have been met.

Admission requirements: The minimum admission requirements to this degree are: (1) an undergraduate minor in one of the science departments listed above, and (2) fifteen hours of undergraduate work in professional education. These requirements are in addition to the general requirements of The Graduate College.

Program requirements:
1. Nine hours from the following Teacher Education core courses:
   b. ED 602. School Curriculum
   c. ED 603. Social and Philosophical Foundations
   d. ED 604. Psychological Foundations of Education
2. Fifteen hours of graduate work selected from the regular course offerings of one or more of the science departments.
3. Six hours from either professional education or the sciences or both.

Social Sciences

The thirty-hour program leading to the degree of Master of Arts in Teaching of the Social Sciences is a flexible interdisciplinary program offered by the social science departments and the Department of Education and Professional Development.

The basic purpose of this degree program is to provide substantive course work in both the social science disciplines and teacher education for teachers who desire to gain mastery of both subject matter and pedagogy. It can update and enrich, as well as fill gaps and weaknesses in the undergraduate program. In addition, the program can meet the needs of teachers for a “planned program” necessary for continuing certification to teach in the schools of Michigan. It provides course work in a variety of social science disciplines which can be used to expand employment opportunities and meet accrediting agency requirements to teach social studies.

Admission requirements:
1. Fifteen hours of undergraduate work in professional education or equivalent.
2. Twenty-five hours in the combined disciplines of Anthropology, Economics, Geography, History, Philosophy, Political Science, and Sociology.

Program requirements: Minimal requirements for the Master of Arts degree in Teaching of Social Sciences include the completion of nine semester hours of course work selected from the following Education core offered by the Department of Education and Professional Development.
2. ED 602. School Curriculum (Students who are teaching or planning to teach in Middle or Junior High should substitute ED 622)
3. ED 603. Social and Philosophical Foundations
4. ED 604. Psychological Foundations of Education

The remaining twenty-one semester hours of course work are determined by means of consultation with the Social Science graduate adviser.

Recognizing that each student's undergraduate preparation and professional needs and interests are unique, it is very important the student communicate with the graduate adviser in Social Science before taking courses other than the Education core indicated above.

Social Work

A two-year M.S.W. degree program in professional Social Work is designed to prepare students for direct service and leadership positions in the field of social welfare. 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 expected to be based on 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.

To meet students' special interests, the School of Social Work offers courses in the areas of Corrections, Community Mental Health, and School Social Work. In addition, the school offers opportunity for participation in an interdisciplinary Specialty Program in Drug and Alcohol Abuse. Students may select courses in these areas along with a concentration in either of the areas of Social Treatment or Social Policy, Planning and Administration. Career opportunities for professional practice are excellent in all of these fields.

There are five major content areas in the curriculum:
1. Social Policy; Social and Behavioral Theory; Social Welfare Research and Technology; Social Work Practice (Social Treatment Concentration, and Social Welfare Policy, Planning and Administration Concentration); and Field Education.

Adviser: Gerald E. Markle, Room 2512D, Sangren Hall

Program Information: Helen Nelson, Room 2407, Sangren Hall

Social Work

The Master of Arts degree program in Sociology is designed to give students an advanced understanding of the significant factors and processes of human society; to further the preparation of those planning to
teach in secondary or higher education; to prepare students for doctoral study in sociology; and to provide professional training for a variety of occupational opportunities in government, industry, education, research organizations, social agencies, and correctional systems. Each student's program is prepared individually in consultation with a graduate adviser.

**Admission requirements:**

1. Twenty-four semester hours in undergraduate social sciences, with at least fifteen semester hours in sociology, including courses in theory and research methods.
2. Grade-point average of 3.0 or better in undergraduate sociology courses.
3. If these requirements have not been met, the student may be required to complete additional course work as a condition of admission.
4. Applicants must request three letters of recommendation from academic and/or professional sources to be sent to: Graduate Admissions Committee, Department of Sociology.

**Program requirements:**

1. Complete at least thirty graduate credit hours, selected in consultation with the departmental master's adviser. At least twenty hours, including thesis or essay, must be in sociology; up to ten hours may be in an approved cognate area. SOC 581 and 583 are required of all master's students.
2. Maintain a grade-point average of 3.0 or better in all course work.
3. Complete an original thesis or essay, using approved methods for investigation of a sociological topic. The thesis is recommended for students planning doctoral studies, since a master's degree with essay is considered a terminal degree in this department. Six hours of credit are given for the thesis, two hours for the essay.
4. 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 may be 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.

**Special Education**

**Advisers:** Ahmad Baker, Alonzo Hannaford, Barbara Harris, Donna Iacbone, Abraham Nicolou, Elizabeth Patterson, DonaldSellin, Marvin Wirtz. Department office is located in Room 3506, Sangren Hall.

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 for the Master Clinical Teacher degree program.
3. A point-hour ratio of at least 2.6 during the last sixty hours of undergraduate study and 3.0 in the special education major.

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

1. Certified regular classroom teachers interested in obtaining approval to teach mentally handicapped, emotionally disturbed, or crippled and homebound persons who qualify for the Master of Arts degree by completing a major in a categorical area. Prerequisite coursework must be determined by the Department of Special Education.
2. The Master Clinical Teacher program is specifically designed to accommodate experienced special education personnel who qualify for a Michigan endorsement in Special Education and are desirous of acquiring advanced knowledge, skill, and experience in working with exceptional persons. Prerequisite courses or equivalents to be completed prior to admission to this degree program include the following:

**Speech Pathology and Audiology**

**Advisers:** Harold L. Bate, Room 203, Speech and Hearing Center; Christopher D. Bauch, Room 240, Speech and Hearing Center; Michael J. Clark, Room 205, Speech and Hearing Center; Frank B. Robinson, Room 305, Speech and Hearing Center

The Master of Arts degree program in Speech Pathology and Audiology, which is accredited by the American Board of Examiners in Speech Pathology and 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 master's degree program consists of a minimum of thirty-five academic credit hours and 150 hours of supervised clinical practicum planned in accord with the guidelines indicated below. Supervised clinical practice is required during every term of registration and includes regular participation in outpatient initial evaluations as well as assignment for one term, to an off-campus practicum site, in addition to regular case work responsibilities in the Speech and Hearing Clinic.

**Admission requirements:** All eligible applicants for the master's degree program will be considered, but admission will be granted only to those who most satisfactorily meet the requirements described below; and the number of new admissions for each term will be governed by the number of available openings in the program. Students will be admitted for full-time study beginning only in the Fall or Winter term of each year. Admission decisions for the Fall term will be announced on March 15, April 30, and July 15. Admission decisions for the Winter term will be announced on September 15, October 15, and November 15. Applicants are advised to complete the application process as early as possible. Specific admission requirements are outlined below:

1. A point-hour ratio of at least 2.6 during the last sixty hours of undergraduate study.
2. Completion of an undergraduate major, or equivalent undergraduate course sequence, in Speech Pathology and Audiology. The student who has not completed these requirements as an undergraduate will need to do so prior to enrollment in departmental graduate courses.
3. Undergraduate preparation must include at least ten hours in courses that provide fundamental information applicable to the normal development and use of speech, hearing, and language. Among these ten 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. Course-
work in descriptive linguistics is highly recommended.

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

c. Accumulation of a point-hour ratio of at least 3.25 in all undergraduate speech pathology and audiology coursework.

d. Submission of applicant's scores on the Aptitude Section of the Graduate Record Examination.

e. Evidence of personal and professional qualifications considered necessary for successful professional practice as reflected in:
   - Three letters of recommendation for individuals able to speak to the applicant's academic and practicum achievements and to the applicant's potential for successful completion of graduate work.
   - Responses to a detailed departmental questionnaire-application.

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 at least twenty-nine hours of course work plus the thesis. The student who elects the non-thesis option must complete at least thirty-five hours of course work.

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

2. Completion of at least one departmental graduate topical 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 300 hours of supervised clinical practicum experience, at least 150 of which must be accumulated at the graduate level. This experience must include: work with children and adults; diagnostic work, and work with a variety of specified disorders. (The student who enters graduate work with fewer than half of the required 300 hours of practicum in areas required for ASHA clinical certification may anticipate proportionate extension in the duration of the degree program.)

5. The student must manifest emotional add behavioral characteristics which, in the judgment of the departmental staff, will not jeopardize his/her 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, language, and hearing.

A Master Thesis (6 hrs.) 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 project.

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

Statistics

Advisers: Janice Dubien
Gerald L. Silvers
Michael Stollne
Room 3319, Everett Tower

The master's program in Statistics is offered through the Department of Mathematics. Two types of programs are available in this area:

- **OPTION I (Theoretical):** This option combines a regular Master of Arts degree 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. A minimum of thirty hours is required and the resulting degree is a Master of Arts in Mathematics with concentration in Statistics.

  **Admission requirements:** Requirements are the same as for the Master of Arts program in Mathematics.

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

- **OPTION II (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. A minimum of thirty hours is required and the resulting degree is a Master of Science in Statistics.

  **Admission requirements:** For admission to this option, candidates must have completed an undergraduate program containing a substantial amount of mathematics, including a complete calculus sequence and a substantial course in probability. Note: Any student lacking the probability course must complete such a course before taking the Fall/Winter sequence MATH 562-563. This could be done in the summer session preceding his/her fall semester in the program. A complete undergraduate mathematics major is not required since the requirements in pure mathematics are not as extensive as in Option I.

  **Program requirements:** This option requires at least thirty-one hours of approved courses from the following groups:

  1. MATH 506, 510, 562, 660, 662, and 712.
  2. Three of the following: MATH 661, 663, 664, 665, 666, 667, 669.
  3. One cognate course.
  4. Two hours of Seminar: MATH 696.

  Part of this program involves experience in applied statistics carried out in cooperation with a local industry or related department. Usually, academic credit for this experience is obtained under MATH 712. A final examination over the entire program is required.

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 Chairperson or one of the Program Advisers.

**Technology**

Roy W. Groulx, Chairperson of Advisers
Room 2015, Industrial and Engineering Technology Building

The objectives of the graduate program leading to a Master of Science in Technology are:

1. To augment the professional and technical skills of students in specific areas.
2. To develop the capabilities to deal appropriately with resources available in commerce and industry, i.e., people, time and money.
3. To increase the breadth of understanding of the students' responsibilities as technically educated individuals through the development of analytical skills and knowledge in cognate areas.

The scope of the graduate program includes studies in the areas of engineering, technical resource management, and industrial leadership. The program requires completion of a minimum of thirty semester hours beyond the entry level course requirements in the student's program.

**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 2.5 in this area.
3. Where the students' background is deficient, an articulation program of foundation courses will be required.

**Program requirements:**

1. Complete a minimum of thirty hours of graduate work, including IEGM 697 Introduction to Technology.
2. The academic program consists of:
   a. Professional — Technical: A minimum of twelve hours to be selected from specific graduate course offerings, depending on major emphasis.
   b. Leadership and Resource Management: Nine hours or equivalent selected from graduate studies concerned with leadership skills and techniques of resource management.
   c. Cognate area: Three hours of graduate study pertinent to current industrial problems.
   d. IEGM 697 will be developed around a significant topic resulting from graduate study interest and will be presented as a formal business report with emphasis on technical writing and communications. This report will be the basis of the candidate's oral presentation.
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=4.0) in the last two years of undergraduate work for all programs permitting entrance with a bachelor’s degree. A point-hour ratio of at least 3.25 for all graduate work undertaken beyond the bachelor’s degree.
   d. Attainment of satisfactory scores on standardized tests approved for each program by the Graduate Studies Council. A satisfactory score usually is considered to be one that is at the fiftieth percentile or better.
   e. Acceptance by The Graduate College and a unit for a definite program of study.

2. Candidacy
   a. A Graduate Student Permanent Program which will constitute an application for admission to candidacy must be submitted during the first semester or session of enrollment.
   b. Reservations indicated on the Certificate of Admission and/or the Graduate Student Permanent Program must be removed before candidacy will be approved.
   c. A point-hour ratio of at 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 by October 1 for the December Commencement, by February 1 for the April Commencement, and by June 1 for the August Commencement.
   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 (Fall, Winter, or Spring-Summer) of enrollment at Western Michigan University.
      or
      2) Enrollment in two sessions in consecutive years and the intervening semesters.
   d. Point-hour Ratio
      A point-hour ratio of 3.25 is required for all work taken for the degree.
   e. Hours After Candidacy
      The election and completion of at least six hours is required after being approved for Candidacy.
   f. Transfer Credit
      A student with a Master’s degree from another university who completes the remaining credits for a Specialist degree at Western Michigan University may transfer up to thirty-six credits. A student without a Master’s degree who completes the credits for a Specialist’s degree at Western Michigan University may transfer up to twelve credits.
   g. Time Limit
      A student who has a Master’s degree is required to complete a Specialist degree program in five years; a student admitted without a Master’s degree is required to complete the Specialist degree program in six years.
   h. Specialist Project
      A student completing the specialist degree must present a Specialist Project (6 hrs.) in a form acceptable to the unit and The Graduate College. In writing the paper, a student must purchase 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

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 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, administrators of student personnel services in higher education, and program directors in human service agencies.

A flexible curriculum enables students to fulfill individual objectives. Course work is elected in three major areas: Counseling and Personnel, Professional Education, and 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.

Educational Leadership

Advisers: Harold W. Boles, Mary Anne Bunda, James A. Davenport, Richard E. Munsterman, Rodney W. Roth, James R. Sanders, Ulıds Smith-Jensen, Carol F. Sheffer, Daniel L. Stufflebeam, William P. Viial, Charles C. Warfield, Donald C. Weaver. Department office is located in Room 3102, Sangren Hall.

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 they are accepted after a screening interview with a department committee and after receipt of Graduate Record Examination scores. Each student accepted will work with the Chairperson of the Department of Educational Leadership to have an adviser and one committee member appointed. These persons will be selected in terms of the student’s professional interests and will work with him/her in outlining an individualized and multidisciplinary program of studies for him/her to pursue, constituted from departmental and other offerings in these focal areas:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>11 hrs.</td>
</tr>
<tr>
<td>Human Relations</td>
<td>12 hrs.</td>
</tr>
<tr>
<td>Concept Formation</td>
<td>12 hrs.</td>
</tr>
<tr>
<td>Research</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>Independent Study</td>
<td>6 hrs.</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>60 hrs.</td>
</tr>
</tbody>
</table>

*Certain career goals within the program may alter the number of hours required in these areas.

At least twelve 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
School Psychology

The Specialist in education degree program in School Psychology is a competency based program designed to train persons for careers in School Psychology. Both the Master of Arts and Specialist degree programs are accredited by the National Council for Accreditation of Teacher Education (NCATE). Applicants are admitted to the specialist program and receive the master's degree in the process of completing the specialist sequence.

Program requirements: Students complete a program of study in the College of Business. concentrating in an area of business taught in the University. The Specialist in Arts degree program in Business Education is designed to prepare community college teachers of business subjects.

Program requirements: Students with appropriate undergraduate work in business or related subjects and who meet the admission requirements of The Graduate College may apply for admission.

Advisers: Joseph J. Eisenbach, Alonzo Hannaford, Abraham W. Nicolaou, Elizabeth Patterson, Morvin A. Wirtz
Room 3506, Sangren Hall

Room 211, Wett Hall

The Specialist in Education is offered to assist special education personnel in developing professional competencies in supervision and administration of program in services for exceptional children and youth. Individuals applying for admission to this program will be expected to have completed significant courses to qualify for full approval to teach exceptional children in 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 PROGRAMS

Business Education

The Specialist in Arts degree program in Business Education is designed to prepare community college teachers of business subjects.

Admission requirements: Students with appropriate undergraduate work in business or related subjects and who meet the admission requirements of The Graduate College may apply for admission.

Program requirements: 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 departments or areas of the College of Business (Accountancy, Business Education and Administrative Services, Business Law, Finance, Management, and Marketing) and other University departments is determined by the student in consultation with a departmental adviser. A specialist project is required.
History

H. Nicholas Hammer, Adviser
Room 4013, Friedmann Hall

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 in History and one field 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 in History should be designated as the area of concentration.

Although no specific number of hours is required in each field area, the student will be expected to complete at least two seminars; to present an acceptable master's thesis or essay in the area of concentration; to pass written and oral comprehensive examinations in two fields during the semester in which he/she completes thirty hours of graduate work and in the remaining 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.

Librarianship

Jean E. Lowrie, Adviser
Room 2080, Waldo Library

The Specialist in Arts degree program in Librarianship is designed to prepare librarians interested in advanced study for leadership roles in the profession. The program strengthens an individual student's area of specialization while providing a program of greater depth and breadth than is possible at the master's degree level. A minimum of thirty hours of graduate study beyond the master's degree in librarianship is required for the Specialist in Arts degree.

This program is designed for the student individually and includes large segments of independent work. The course of study will, therefore, be arranged to meet each student's professional needs and might concentrate on outreach services, services to the disadvantaged, information retrieval or some other area in which in-depth study is desired. Students may combine advanced study in librarianship with cognate courses in other fields.

Among the areas of specialization presently offered are the following:

1. 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/her 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.

2. Administration of Community College Libraries: The curriculum is planned to enhance competencies in the various areas related to 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.

3. Public Library Service: The curriculum provides the necessary professional background for public library administration at such levels. 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.

Admission requirements:

1. Master's degree in librarianship from a program accredited by the American Library Association with a minimum grade point average of 3.25 (A = 4).
2. One year of successful library experience.
3. Completion of Graduate Record Examination, Aptitude Section and one Advanced Section, with acceptable scores.

Program requirements:

1. Thirty hours of graduate courses, including one course in research methods if not included in master's degree work.
2. Participation in the Specialist and research and professional internship.
3. Specialist paper or project acceptable to departmental adviser.
4. An oral examination based on the paper or project.

Mathematics

Kung-Wei Yang
Chairperson of Advisers
Room 3319, Everett Tower

The Specialist in Arts degree program in Mathematics is designed to prepare teachers of mathematics in community colleges and liberal arts colleges. Special options are available to provide advanced study in Statistics and Applied Mathematics in preparation for work in industry or government. The completion of at least sixty hours of acceptable work beyond the bachelor's degree is required. The program is administered by the Specialist Committee of the Department of Mathematics.

Admission requirements: In addition to meeting the general admission requirements of The Graduate College, the applicant must:

1. Complete the equivalent of an undergraduate major in mathematics, with satisfactory grades, in a college or university of recognized standing;
2. Attain a satisfactory score in the Graduate Record Examination;
3. Have the approval of the Specialist Committees for a program of study.

Program requirements: The program of each student is planned in consultation with members of the Specialist Committee. The study of a broad range of mathematics is desired.

The first part of the program is devoted to satisfying the requirements for a master's degree in mathematics. As soon as the relevant course work is completed, the student is expected to take the Department Graduate Examination, Linear Algebra 530, Foundations of Analysis 571, and General Topology 520. A student entering this program with a Master's degree from some other institution must satisfy the requirements of The Graduate College for transfer credit.

Upon completion of the program requirements for the master's degree, the candidate will work under the supervision of an adviser chosen by the student and the Specialist Committee. This adviser then will be responsible for the student's permanent program.

As soon as the necessary course work is completed, the student will take the Preliminary Examinations for the Specialist degree. These will consist of three examinations: Analysis (670 and 676), Algebra (630), and an approved elective at the 600-level. Each student's program must include at least one course in computers, at least one course in applications of mathematics, and, for students planning a career in college teaching, MATH 656.

Near the completion of the student's course work, the Specialist Committee, upon the recommendation of the student's adviser, will nominate the student's Project Committee. This is to consist of three members, including the adviser as chairperson. The Specialist Project (2 hrs.) will generally be of an expository nature, and must be presented in a form which is acceptable in both scholarship and literary quality to all members of the student's Committee as well as The Graduate College. The student's Committee is also responsible for setting up and conducting the oral presentation of the Project.

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 program as a whole, should contact the Mathematics Department Office.

Science Education

Paul E. Holkeheber, Adviser
Room 2060, Friedmann Hall

The Specialist in Arts degree program in Science Education 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: (1) two or more of the sciences, (2) other selected areas dealing with environmental issues, and (3) Education; Physical Science, with course work in Chemistry, Physics, and Education.

The Specialist degree program consists of sixty hours of graduate work and is planned to prepare community college teachers of one of the broad areas listed above, in addition to lower division science courses. For example, students 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 their area of concentration. In all of the options the student will be required to take work from more than one science area.

Admission requirements: The minimum admission requirements to
Specialist Degree Requirements

this degree program are an undergraduate major in one science (Biology, Chemistry, Earth Science, Geology, or Physics) and a minor in a second science. It is possible to make up undergraduate deficiencies after admission. The above stated requirements are in addition to the general requirements of The Graduate College.

Program requirements: Each student's program is planned in consultation with the adviser and a faculty member of the major science area, and consists of the following:

1. Professional education courses (9-11 hours):
   - ED 600. Fundamentals of Measurement and Evaluation in Education;
   - ED 601. Fundamentals of Educational Research; or a research course in the major science area.
   - ED 650. Characteristics of the College Student
   - ED 690. The Community College
   - ED 699. Seminar in College Teaching

2. Science courses: 43-45 hours of graduate level work chosen from more than one science area, including supporting mathematics (12-hour maximum) where necessary. Students in the Environmental Science option may elect courses in selected and approved non-science areas in addition to course work in sciences.

3. GRAD 720. Specialist Project (6 hrs.): The project may be done in either the major science area or in Science Education. The project must be approved by and completed under the direction of a faculty adviser and a committee. An oral presentation of the project is required.
SECTION IV

Doctoral Degree Programs and Requirements

Western Michigan University offers doctoral programs in eight areas. The Doctor of Education degree is offered in Educational Leadership, Counseling and Personnel, and Special Education; the Doctor of Philosophy degree is offered in Chemistry, Mathematics, Sociology, Science Education, and Psychology. Each program involves approximately three calendar years of study of which at least an academic year of two consecutive semesters 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 the student wishes to study. A student will be expected to register for at least ninety hours of graduate level work while completing his or her program. The exact distribution of the 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, the recommendation and standard of proficiency expected must be approved by the Graduate Studies Council. Appropriate competency in language, statistics, and computer programming has been established for each program and approved 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 granted by The Graduate College.

A student will be expected to pass those examinations established by the unit in which he or she 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 Events for application deadline.)
   a. See specific program description to determine the minimal entrance requirements.
   b. Official 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.
   e. Evidence of appropriate background, objectives, and communication skills demonstrated in an autobiographical statement.
   f. Attainment of satisfactory scores on standardized tests approved for each program by the Graduate Studies Council. Graduate Record Examination scores on the Aptitude Test are required for each doctoral program except the program in Special Education which requires the Miller Analogies Test. The Miller Analogies Test is also required for the doctoral program in Psychology. A satisfactory score usually is considered to be one that is at the fiftieth percentile or better.
   g. 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.
   h. Admission by both The Graduate College and the unit offering the doctoral program.

2. Applicance
   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 the 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, 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 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.
   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 an academic year of two consecutive semesters must be spent in full-time study.
   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 a Doctoral Dissertation (15 hrs.) by three members of the Doctoral Advisory Committee, including one representative of the Graduate Faculty from outside the major department or college. The dissertation must be in a form acceptable to the unit and The Graduate College. In writing the dissertation, a student must purchase the most recent edition of Specifications for Masters’ Theses, Specialist Projects, and Doctoral Dissertations available in the Campus Bookstore.
   e. Satisfactory performance on the doctoral examination.

PROGRAMS LEADING TO A DOCTORAL DEGREE

Chemistry

Don C. Iffland, Adviser
Room 3341, McCracken Hall

The Doctor of Philosophy degree 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/her 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. The qualifying examinations are scheduled during the week preceding each semester or session. New students, unless entering with an acknowledged deficiency, are required to take all three examinations before they start classes. Students who fail a qualifying examination must repeat it when next regularly scheduled and normally are required to attend the corresponding undergraduate course, if available. Enrollment in a 600-level course is not permitted unless the appropriate qualifying examination is passed.

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 272 or MATH 274 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, and either CHEM 510, Inorganic Chemistry, CHEM 550, Biochemistry I or CHEM 552, Biochemistry I with Laboratory; (e) Six 600-level courses from at least three divisions, including two courses from the division of his/her 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/she 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/her major adviser and other members of his/her 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.

**Counseling and Personnel**


The Doctor of Education degree in Counseling and Personnel prepares individuals for positions as leaders and skilled practitioners in schools, colleges and universities and lay institutions and agencies. This unique program is particularly suited to those in physical chemistry. will take more advanced education is a highly complex multidisciplinary 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, work experience, academic record, letters of recommendation, and the recommendations of a departmental screening committee.

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

1. One member with special competence in research, and
2. One member from outside the department who is representative of the Graduate Faculty.

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

**Educational Leadership**

Advisers: Harold W. Bole, Mary Anne Banda, James A. Davenport, Richard E. Munsterman, Rodney W. Roth, James R. Sanders, Uldis Smidchens, Daniel L. Stufflebeam, William P. Viell, Donald C. Weaver. Department office is located in Room 3102, Sangren Hall.

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 or she is accepted after he or she has taken the Graduate Record Examination, his or her scores have been received, and he or she has been interviewed by a screening committee. Each student accepted will work with the department chairperson 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 or her in outlining an individualized and multidisciplinary program of studies constituted from departmental and other offerings in these focal areas:

14 hrs. * in Administration
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 fifteen hours of the ninety hours **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 education agency.

- **Staff Administration** — 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.

*Certain career goals within the program may alter the number of hours required in these areas.
The Doctor of Philosophy degree 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. In this Department doctoral work in mathematics can be in pure mathematics, applied mathematics, statistics, and mathematics education. More specifically, the area of specialization may be chosen from among algebra, applied statistics, college mathematics teaching, complex analysis, differential equations, functional analysis, graph theory, group theory, number theory, optimization theory, probability, topological graph theory, and topology. A minimum of ninety hours is required in the program.

Admission requirements: 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/her in planning his/her program until he/she reaches the stage of having a Dissertation Adviser appointed.

Program requirements: As early as possible in his/her program the student must pass the Departmental Preliminary 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) an 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/her 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. For a student concentrating in Algebra, Analysis, or Topology, the Preliminary Examination will consist of a three-hour written examination in each of these three areas; for a student concentrating in some other area, the Preliminary Examination will consist of three-hour examinations in his/her specialty, in Analysis and in either Algebra or Topology (the choice being subject to the approval of the Department Doctoral Committee); for a student concentrating in mathematics education, the Preliminary Examination will consist of a three-hour examination in mathematics education, and two three-hour examinations in mathematics to be selected from Algebra, Analysis, and Topology. A student must take each Preliminary Examination the first time it is offered following his/her completion of the required course work in that field. If the student fails an examination, he/she 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/her 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. Students in mathematics education may meet the research tools requirement by demonstrating competence in computer usage and statistics.

Many mathematics Ph.D.s will eventually take a position which involves some teaching commitment. Thus, as part of his/her 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.

A student who completes all basic course requirements, the Preliminary Examination, and who otherwise satisfies the requirements of The Graduate College is designated as a candidate for the doctoral degree. Shortly after attaining the status of candidate, the student, with the approval of the Doctoral Committee, is expected to select and be accepted by a Dissertation Adviser.

With the approval of the Doctoral Committee, the candidate and Dissertation Adviser select a Dissertation Committee for the candidate. The Dissertation Committee consists of at least five members, with the Dissertation Adviser serving as Chairperson. At the time of selection, one member (not the Dissertation Adviser) is appointed as Second Reader. Each Dissertation Committee must also contain an individual who is not a member of the Mathematics Department of Western Michigan University; this individual is designated as the Outside Member.

At least seven days prior to the final dissertation defense, the Doctoral Committee is to receive written reports (including recommendations) on the candidate's dissertation from each of the Dissertation Adviser, the Second Reader, and the Outside Member. Each member of the Dissertation Committee is to receive copies of all these reports prior to the dissertation defense.

Under the direction of the Dissertation Adviser, the candidate is required to do creative research, and, in general, further his/her knowledge in some area of mathematics. The findings of the candidate must be compiled in scholarly form in a dissertation, which will be read and judged by the Dissertation Committee. The candidate's final dissertation oral defense, chaired by the Dissertation Adviser, normally consists of a colloquium talk presented to the Department of Mathematics, after which an oral examination on the candidate's dissertation is conducted by the Dissertation Committee. Immediately following the defense and examination, the Dissertation Committee meets to consider whether the dissertation should be approved and whether the candidate has passed the examination. These two recommendations are made to the Doctoral Committee.

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 Mathematics Department Office (3319 Everett Tower).

### Psychology

The Doctor of Philosophy degree program in psychology is designed to provide intensive training in either the Experimental Analysis of Behavior or Applied Behavior Analysis. The Ph.D. degree is a research degree for persons intending to assume leadership roles in programming, teaching, and research in a variety of professional and academic institutions.

In addition to meeting the entrance requirements of The Graduate College, applicants are expected to show evidence of interest in and aptitude for conducting research in Behavior Analysis. While the program is open to students with a bachelors or a Master of Arts degree, the research emphasis of the program is more appropriate for persons with training and experience in Behavior Analysis. Graduate students receive a personal appointment to a doctoral chairperson and two faculty sponsors in an apprenticeship role to facilitate the full development of the student’s academic interests in Behavior Analysis within the research programs of the Department and the University. The program is arranged to encourage active participation in the daily conduct of the Department’s academic program and research activities.

The ninety credit hours of the Ph.D. program are arranged in terms of area competencies designed to prepare students for teaching and research in Behavior Analysis. The coursework includes:

**APPLIED BEHAVIOR ANALYSIS OPTION:**

1. Experimental analysis of behavior (6 hrs.)
2. Statistics and experimental design (6 hrs.)
3. Behavior modification: Areas of research and application (15-18 hrs.)
4. Systems analysis (6 hrs.)
5. Practicum in applied behavior analysis (12 hrs.)
6. College teaching experience (6 hrs.)
7. Professional problems and ethics (3 hrs.)
8. Electives and cognate courses (12-15 hrs.)

**EXPERIMENTAL ANALYSIS OPTION:**

1. Experimental analysis of behavior (6 hrs.)
2. Statistics and experimental design (6 hrs.)
3. Experimental Analysis: Areas of research and application (15 hrs.)
4. History and systems (9 hrs.)
Doctoral Degree Requirements

5. Apprentice research (6 hrs.)
6. College teaching (6 hrs.)
7. Professional problems (3 hrs.)
8. Electives and cognate courses (18 hrs.)

The research activity of the doctoral student is continuous and is encouraged through participation in the apprentice research program, completion of a six credit hour Master's Thesis, the completion of a fifteen credit hour Master's Thesis, and a fifteenth credit hour dissertation in Behavior Analysis, the presentation of these data at a colloquium. In addition to the ninety hours of formal coursework, research activity, and professional experience, the student is required to demonstrate competence in two research tools selected from foreign languages, American sign language, computer usage, or advanced statistics. The doctoral candidates will also show evidence of an ability to interpret, integrate, and discuss the research data in Behavior Analysis by the satisfactory completion of comprehensive examinations in two areas of concentration and the preparation of a review paper of publishable quality.

The program is arranged to provide formal evaluations to the student as he/she progresses from baccalaureate apprentice to doctoral applicant with the completion of the Master's Thesis, to doctoral degree candidate with completion of the comprehensive examinations and the review paper. The award of the Ph.D. degree is made following the satisfactory completion of comprehensive examinations in two areas of concentration and the presentation of the dissertation at a Departmental Colloquium.

The Department of Psychology offers financial assistance through Department assistantships and program fellowships. Additional information concerning financial awards and program requirements may be obtained from the program coordinator.

Science Education

Paul E. Holkemoer, Adviser
Room 2060, Friedmann Hall

The Doctor of Philosophy degree program in Science Education is a broad science program requiring graduate work in more than one science and a total of ninety hours of graduate work.

In Option I of this program, graduate work in three sciences, selected from Biology, Chemistry, Earth Science, and Physics, is required. This option is designed to provide depth in one science area and breadth in all 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 various federally funded programs designed for science teachers who have less-than-adequate training in the sciences, and general education interdisciplinary science courses or (3) college teachers of science methods courses and supervisors of student teachers of science or (4) teachers of college science courses, (5) 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.

A second option is available which provides an emphasis in environmental science. Option II requires graduate work in two sciences and additional work in appropriate courses dealing with environmental issues offered in such departments as: Geography, Political Science, etc.

Program Information: Helen Nelson, Room 2407, Sangren Hall
Jerome G. Manis, Room 2512F, Sangren Hall

Sociology

Advisers: David M. Lewis, Room 2509, Sangren Hall
Jerome G. Manis, Room 2512F, Sangren Hall

The Ph.D. program in Sociology is designed to prepare students for careers in sociological research and teaching. Broad training in sociology is provided through a wide variety of courses and research experiences, with each student's program individually guided by a doctoral committee.

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, social psychology, criminology, and applied sociology. A third area of individual specialization is chosen.
by the student with the approval of the student's doctoral committee. The areas of concentration are important and active ones in the field. The areas of concentration provide students with valuable specialties and augment the doctoral training in the discipline as a whole.

Admission requirements:
1. Master's degree in sociology.
2. Grade-point average of 3.25 in all graduate work.
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 as a condition of admission.
4. Applicants must request three letters of recommendation from academic and/or professional sources to be sent to: Graduate Admissions Committee, Department of Sociology.

Program requirements:
1. Complete, beyond the master's degree, at least sixty hours of course and dissertation credits; courses in addition to the required core courses are selected in consultation with the student's doctoral committee.
2. Demonstrate competence in two research tools selected from: a foreign language other than English, research methodology, statistics, and computer programming.
3. Pass examinations in two departmental areas of concentration and in one individual area of specialization.
4. Write and successfully defend an original dissertation to the satisfaction of the doctoral committee and The Graduate College. Fifteen credit hours are required for the dissertation.
5. Criteria and procedures for meeting these requirements are described in detail in the department's Graduate 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 may be 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.

Special Education
Advisors: Joseph J. Eisenbach, Alonzo E. Hannaford, Donald F. Sellin, Morvin A. Wirtz
Department office is Room 3506, Sangren Hall

The Doctor of Education degree program in Special Education is designed to prepare an individual to serve as a college teacher in a Department of Special Education and as an administrator of educational programs for the handicapped.

Application for admission to the Ed.D. program must be made to The Graduate College. Prospective students are expected to satisfy all requirements for admission to doctoral programs specified by The Graduate College. They must also qualify for teacher certification and State approval to teach in at least one area of Special Education, and have completed a minimum of two years of successful teaching experience, one of which must be with handicapped persons. Admission to the program is contingent upon a satisfactory score on the Miller's Analogies Test and the successful completion of a personal interview with a committee comprised of Special Education graduate faculty.

Upon admission to the program, the Head of the Department of Special Education will assume responsibility for developing an initial sequence of courses and assigning the individual to appropriate practicums. Prior to being awarded applicant status, the student must select a major adviser (who has been recommended and approved by the Head of the Department of Special Education and The Graduate College), and two graduate faculty including one faculty member in the Department of Special Education and one representative of the graduate faculty from outside the College of Education. Immediately after the doctoral advisory committee has been constituted, a preliminary diagnostic and planning examination will be conducted. Results will be used by the committee in determining the depth and breadth of the formal program of studies.

During the course of study, and prior to the student's admission to candidacy, internships will be completed in college teaching and administration of programs and services for the handicapped. Scheduling, placement, and supervision of interns will be the responsibility of the doctoral committee. Upon completion of basic course requirements and internships, excluding the dissertation, the doctoral student will be required to successfully complete a written examination. Following the approval and acceptance of the dissertation, the student will be required to successfully complete an oral examination.
SECTION V

Description of Graduate Courses

College of Applied Sciences

W. CHESTER FITCH,
Dean
ROBERT E. BOUGHNER,
Assistant Dean
DON W. NANTZ,
Assistant Dean

Graduate Offerings:
Agriculture
Distributive Education
Electrical Engineering
Home Economics
Industrial Education
Industrial Engineering
Mechanical Engineering
Paper Science and Engineering
College of Applied Sciences (AAS)


The College of Applied Sciences offers graduate programs in Technology, Home Economics, 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.

Open to Graduate Students Only

640 Introduction to Technology 3 hrs.
An introduction to the Master's of Science in Technology program, including a discussion of computer applications, preparation of short reports, and personal and societal concerns of technically educated professional employees.

Agriculture (AGR)

Baker, Head; Associate Professor Benne
Assistant Professor Houdek

Open to Upperclass and Graduate Students

520 Soil Science 3 hrs.
Treats soil as a natural resource; and how soil formation, composition and classification are related to various physical, chemical and biological factors in the environment. Consideration is given to soil fertility, water retention, plant growth and land use. Prerequisite: Soils 320 or approval of instructor.

Distributive Education (D ED)

Dannenberg, Chairperson; Professor Humbert.

Open to Upperclass and Graduate Students

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

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.

572 Teaching Techniques and Materials in Distributive Education 3 hrs.
The instructional materials and techniques used in secondary and postsecondary distributive education programs. Specific development of Distributive Education Competency-based education, task analyses, semester plans, unit plans, lesson plans and delivery systems of panel, lecture, case study, testing, question and answer demonstration, role playing, individual instruction, drill, review, and group work.

573 Coordination Techniques in Cooperative Education 3 hrs.
Publicity, administration, coordination, guidance, and teaching functions of the cooperative education teacher coordinator; establishing criteria and guidelines for operating a Cooperative Vocational Education Program.

596 Independent Study 2-6 hrs.
A program of independent study to provide the unusually qualified student with the opportunity to develop and complete a project which will meet his/her needs and interests in distribution, under the guidance of a departmental faculty member. Two hours credit per semester, accumulative to six hours. Enrollment beyond the first semester may be either for the same project or for a new one. Prerequisite: Consent of instructor.

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. Prerequisite: Consent of department chairperson.

Electrical Engineering (EE)

Hesselberth, Chairperson; Professor Wilcox; Associate Professors Davis, VanderKool.

Open to Upperclass and Graduate Students

510 Advanced Circuits 3 hrs.
Topics in circuit analysis and design such as computer analysis, state-space analysis, sensitivity, and distributed networks. Prerequisite: EE 371.

530 Power System Analysis I 3 hrs.
Modern systems, control, optimization, network theories, matrix language, computer methods, steady state. Prerequisite: EE 430.

550 Digital Signal Processing 3 hrs.
Introduction to discrete systems, design and implementation of digital filters, applications of fast fourier transforms. Prerequisite: EE 371.

561 Electromagnetic Fields 3 hrs.
Time-varying electromagnetic fields with applications to wave guides and antennas. Prerequisite: EE 361 and 371.

570 Modern Control Theory 3 hrs.
Modern control theory using “state variable” formulations provides a unified approach to a wide variety of problems—depends on matrix theory and linear algebra. Prerequisite: EE 371 or permission of instructor.

Home Economics (H EC)

Coates, Chairperson; Professor Brennan

Open to Upperclass and Graduate Students

502 Textile Clinic 2 hrs.
Investigation of textile problems, resources and research. Prerequisite: H EC 200, or permission of instructor.

504 The Socio-Psychological Aspects of Clothing 2 hrs.
Social and psychological implications of clothing for the individual and family. (Alternate summers.)
648 Adult Education in Homemaking 2 hrs.
Influence of developmental needs of adults and changes in society affecting families in developing adult programs in homemaking education.

650 Advanced Study of Home Management 2 hrs.
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.
Exploration of current issues, trends, and methods in teaching family life education.

654 Housing 2 hrs.
Economic and social aspects of housing. Single, duplex, and multiple housing problems considered. Prerequisite: H EC 350 or permission of department chairperson.

660 Studies in Family Relationships 3 hrs.
Concentrated study of specifics in family relationships.

662 Seminar in Family Relationships 3 hrs.
Investigation and discussion of current research and literature in family relationships.

664 Seminar in Home Economics Education 2 hrs.
Investigation and discussion of current research and literature in Home Economics education.

666 Studies in Home Economics Education 2-6 hrs.
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. Maximum credit is six hours.

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

700 Master's Thesis 6 hrs.

710 Research — Master's and Specialist 2-6 hrs.

Industrial Education (I ED)

Feirer, Head; Professors Bendix, Byle, Hutchings, Lindbeck, Risher; Associate Professors Atkins, Bruce, Johnson, Klammer, Rayford, Schwersinske; Assistant Professors Darling, Ghuen.

Open to Upperclass and Graduate Students

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

502 Wood Technology 2 hrs.
Experience in and study of cellulose materials and their use in construction and manufacture, including characteristics of lumber, handmade wood products, the materials related to the fabrication of wood products, applied research, and testing. Prerequisite: I ED 100.

506 Residential Building Construction 3 hrs.
Skill development and knowledge related to foundations, floor and roof framing, exterior doors, windows, roofing, siding, insulation, and preparation for interior wall coverings, trim, and cabinets. Prerequisites: I ED 100 or 200, and 305 (can be taken simultaneously).

507 Finish Carpentry and Cabinetmaking 3 hrs.
Development of skill and knowledge related to built-in cabinets, and installation of prefabricated cabinets, wall coverings, finished flooring, floor coverings, fitting and hanging doors, interior trim, and interior painting and finishing. Prerequisites: I ED 100 and/or 200.

508 Related Building Trades 3 hrs.
Covers areas related to residential and light commercial building construction: utilities, electrical wiring, plumbing, building sheet metal work, and environmental control. Prerequisite: I ED 305.

509 Estimating and Scheduling for Building Construction 3 hrs.
Covers organization and management of firms involved in residential and light commercial construction. Includes methods of estimating and
cost control. Also techniques of planning, scheduling, and control of construction projects. Prerequisite: I ED 305, 506, 507.

520 Architectural Graphics 3 hrs.
A graphic study of architectural details and construction methods of frame and masonry veneer residential dwellings. Emphasis placed on residential planning and design principles. Design of a single-family dwelling, including preliminary studies, floor plans, elevations, all necessary details, plot plan, specifications required. Drawings will be reproduced. Prerequisite: I ED 120, or equivalent, and 305 (can be taken simultaneously).

522 Laboratory Practices in Drafting 2 hrs.
Methods and problems of teaching drafting and graphics on the secondary level. Emphasis placed on review of secondary and collegiate texts, resource materials, problem design, and drawings. Prerequisite: Twelve hours in drafting and junior classification.

524 Commercial Architectural Design 2 hrs.
Basic experience in designing light commercial structures. Emphasis placed on planning, traffic flow, exterior design, materials, and structural details. Prerequisite: I ED 520 or equivalent.

525 Architectural Perspective and Rendering 2 hrs.
Intensive study of angular and parallel perspective. Emphasis 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. Emphasis on methods of selecting and developing course materials for junior and senior high school students. Course content adapted to meet individual needs. Prerequisite: I ED 234.

540 Technical Education Methods 3 hrs.

541 Workshop In Vocational-Technical Education 1 hr.
Designed to assist Vocational Education personnel meet Vocational Education program standards of quality mandated by the Vocational-Technical Education Service. Workshop topics will vary to meet Vocational Education personnel needs. Students may enroll for more than one topic, but in each topic only once, to a maximum of three hours credit. Prerequisite: Vocational certification or consent.

545 Safety Education for Industrial Teachers 2 hrs.
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.
Emphasis on halftone reproduction and related photo techniques. Posterization, duotones, basic color, and mechanical dropouts will be included. Color separation processes will be investigated. Prerequisite: I ED 350.

552 Estimating 2 hrs.
Continuation of Estimating 452. Special emphasis on use of Printing Industry Production Standards in pricing printed materials. Prerequisite: I ED 452.

553 Printing Production Management 3 hrs.
Managerial procedures used in printing industries to forecast, plan, schedule, and record production to control production costs. Hourly costs of printing machines will be developed by students. Prerequisite: Junior standing.

560 Electricity-Electronics for Teachers 2 hrs.
Designed for junior and senior high school laboratory teachers of electricity and electronics. Emphasis placed on new methods and materials. Laboratory practice will apply new techniques and develop teaching projects for electricity and electronics instruction.

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

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

572 Metric Conversion 2 hrs.
Study of origins and development of the modern metric system and of problems involved in changeover from customary inch-pound system to the metric system of measurement. Course includes application with base ten system, and basic and derived units of the modern international metric measuring system.

573 Mechanics and Conditioning of Equipment 2 hrs.
Installation, adjustment, preventive maintenance, and conditioning of power equipment and tool maintenance included. Emphasis on relationship between proper installation and condition to efficient machine operation.

575 General Industrial Arts Laboratory Organization 2 hrs.
Experience in drawing, woodworking, metalworking, electricity, and craftwork required. Includes selection, development, and preparation of instructional materials and instructional media for multiple activity instruction at junior and senior high school levels. Prerequisite: I ED 342 and 344. (344 can be taken concurrently.)

578 Plastics Technology 2 hrs.
Comprehensive study of plastic materials and processes and applications of thermoplastic, thermosetting, and selected synthetic materials. Product development emphasizes vacuum forming, compression, extrusion, injection, blow molding, laminating, 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 manual or electrically powered machines.

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 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.
Deals with problems of organizing, correlating, and teaching construction activities in elementary grades. Course materials, techniques, and materials in industrial and craft areas emphasized through development of a teaching unit. Offered only through Continuing Education.

592 Aerospace for Classroom Teachers 2 hrs.
Deals with educational, social, economic, and political implications of aerospace in the modern world. Study of basic aerospace materials and activities appropriate for different grade levels. Consideration given to aerospace literature and visual aids. Opportunities provided for participation and aerospace experiences. Open to elementary and secondary education students. Offered only through Continuing Education.

593 Arts and Crafts for Teachers 2 hrs.
Covers craft techniques in sketching, leather, wood, and related experiences. Emphasis on teaching procedures, methods, and materials. No credit for Industrial Education Majors or Minors or TIE students.

596 Consumer Automobile Principles 2 hrs.
A course in the methods and problems of providing automobile users with basic information on selecting, purchasing, and maintaining a personal motor vehicle. Designed primarily for driver education and high school safety instructors. Not open to students with credit in I ED 384, 385, 386, or 86; TRAN 121, 221, 222, 224, 322, 326, or 421.

598 Readings in Industrial Education 2-4 hrs.
Directed individual or small group study of topics or areas not included in the regular course offerings.
otherwise treated in departmental courses. Head of department consent required.

Open to Graduate Students Only

605 Problems in Woodworking 2 hrs.
Advanced laboratory experiences in woodworking. Content selection, project building, and new techniques covered. Written reports based on current literature required. Areas covered dependent on individual needs.

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

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

630 Research in Machine Shop Practices 2 hrs.
For teachers to study and develop advanced techniques in machine technology.

641 Trends in Industrial Education 2 hrs.
Study of current programs in Industrial Education. Emphasis on program research and development. Commercial, educational, and industrial publications to determine applicability to school shop programs.

643 Measurement in Industrial Education 2 hrs.
Prepares and using teacher-conceived written and practical tests. Includes interpretation of test results and evaluation of student achievement.

644 Project Planning and Designing 2 hrs.
Principles of design, and application to modern industrial products. Special attention given advanced design problems to enrich school shop program.

645 Shop Planning 2 hrs.
Planning and selecting equipment and supplies for an industrial education laboratory. Basic principles of planning and equipment selection related to current industrial education philosophy.

646 Teaching Problems in Industrial Education 2 hrs.
Advanced individual or small group study of teaching methods, techniques, and technical problems. Emphasis placed on problem solving, pupil planning, and demonstration techniques. A teaching program unique to a particular school required.

647 Modern Technological Practices—Foundry, Power Mechanics, Machine Shop, Welding, Electronics, etc. 2-4 hrs.
In-service course for industrial teachers in technological practices. Cooperation of industrial groups utilized in course planning and organization. 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 1 ED 647.

650 Advanced Problems in Graphic Arts 2 hrs.
Individual student study of advanced technical problems in graphic arts. Advanced instruction in composition, typography, and computerized composition available.

661 Electricity for Teachers 2 hrs.
Planning for an electrical area in a general shop or a unity electronics laboratory. Special attention given to development of instructional activities and technical information. Prerequisite: 1 ED 160 and 560.

671 Industrial Education Materials 2 hrs.
Study of basic structures of wood, plastic, metallic, ceramic, and allied materials. Relation of properties of materials to structure included. Laboratories and testing experiences required.

672 Studies in General Shop Content and Practice 2 hrs.
Study of current general shop content emphasizing new instructional areas, science application in multiple activity instructional practice, and selection and purchase of equipment, tools, and supplies. Adaptation of experiments and exercises to general shop instruction included.

699 Technical Problems in Industrial Education 1-3 hrs.
For qualified graduate students to pursue technical problems of individual need or interest under direction of a Graduate Faculty member. Approval of Head, Industrial Education Department and Graduate Faculty member required. Applicants must have permanent graduate program filed. Applications must be approved prior to registration for course. Course is repeatable to maximum of three semester hour credits. Prerequisite: 1 ED 598.

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

700 Master's Thesis 6 hrs.

710 Research — Master's and Specialist 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

VOCATIONAL COURSES

The following courses are designed for professional preparation in all Vocational-Technical Education programs including those in Distributive Education, Home Economics, Industrial Education, Agriculture, Vocational-Technical Education, and Business Education teaching curricula.

Open to Upperclass and Graduate Students

510 Organization and Administration of Vocational Clubs 2 hrs.
Individual or small group study of the organization and administration of vocational youth organizations at the national, state, and local levels. Uses of youth organizations as public relations and/or teaching tools are emphasized.

511 Field Experience in Vocational Clubs 1 hr.
Directed individual study of the organization and administration of multi-section vocational student organizations. Includes organizational chart and lists of duties of the several functions to be performed. Prerequisite: 1 ED 510/Concurrent.

512 Principles of Vocational Education 3 hrs.
The place and function of the practical arts and vocational education in the modern school; fundamental principles upon which this work is based. For teachers of agriculture, business, distributive education, home economics, industrial subjects, office subjects, and administrators. For upperclass and graduate students.

Open to Graduate Students Only

611 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.

612 Studies in Technology 1-4 hrs.
Designed to permit students to take advantage of opportunities offered through technical workshops, seminars, short courses, or field research offered on campus or in industry. Field research requires solving an identified technical or industrial problem under the supervision of a member of the Graduate Faculty. Prerequisite: Consent of instructor and department head prior to registration.

613 Occupational Laboratory Experience 2-3 hrs.
Supervised industrial experience, requiring 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 department head prior to registration.

614 Administration and Supervision of Practical Arts and Vocational Education 2 hrs.
Emphasizes functions of administration and supervision, and problems involved in organizing and operating vocational-technical education programs. For administrators and supervisors of vocational education programs and those preparing for such positions.

615 Trends in Technology and Employment 2 hrs.
Major occupational shifts resulting from recent advances in science and technology. The changing nature of the labor force, economic and sociological implications of automation and atomic power.

53
616 Occupational Selection and Training 3 hrs.
Primarily designed for vocational-technical teachers and administrators. Special 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.

617 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.

Industrial Engineering (IEGM)

Wolf, Chairperson; Professors Day, Fitch, Groulx, Nantz, Proctor, Scott, Wichers; Associate Professors Boughner, Klein, Priddleon, Rayl, Stegman, Urich.

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 chairperson and faculty member. Application must be submitted and approved prior to the election of the course. May be repeated up to maximum of six hours.

INDUSTRIAL ENGINEERING AND MANUFACTURING ADMINISTRATION

Open to Upperclass 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 or her 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. Prerequisites: IEGM 305.

506 Advanced Quality Control 3 hrs.
Analysis and application of new concepts in the fields of quality control. Tests of significance, probability studies, and other uses of statistics as applied to quality control. Prerequisite: IEGM 318 or 328.

518 Engineering Valuation and Depreciation 3 hrs.
A study of the valuation of industrial property with emphasis on methods of estimating depreciation. Topics include concepts of value, the courts and valuation, property and other accounting records, cost indexes, estimation of service life, and methods of estimating depreciation. Prerequisite: IEGM 310.

542 Human Factors Engineering 3 hrs.
A survey of research on the adaptation of equipment, products, and environment to man's use. Prerequisite: Permission of instructor.

545 Health Care Systems Improvement 3 hrs.
The work simplification philosophy and strategy as applied to health care systems. Techniques for systems and methods improvement. A field/clinical systems improvement project is required. NOT OPEN TO STUDENTS WITH CREDIT IN IEGM 305. Prerequisite: Upperclass standing.

Open to Graduate Students Only

600 Concepts of Supervision 3 hrs.
To study the concepts of supervision with particular design for those who have had little or no previous academic orientation to the principles, concepts, and philosophy of industrial supervision. NOT OPEN TO THOSE WITH CREDIT IN IEGM 402 or 502.

606 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. NOT OPEN TO THOSE WITH CREDIT IN IEGM 310.

608 Reliability Engineering 3 hrs.
The formulation of mathematical models for reliability allocation and redundancy. Topics include time dependent and time independent prediction measures for both maintained and non-maintained systems. Prerequisite: MATH 360 or 362.

610 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 queueing theory, inventory models, Monte Carlo simulation, game theory, and dynamic programming. Linear programming is not included, see IEGM 610. Prerequisite: MATH 360.

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

624 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, preservisory training, supervisory training, on-the-job training, and other concepts of industrial training.

626 Public Sector Labor Relations 3 hrs.
Collective bargaining in the federal, state, and local governments.

695 Advanced Topics in Industrial Engineering 1-4 hrs.
A specialized course dealing, each time it is scheduled, with some particular advanced aspect of Industrial Engineering not usually included in other course offerings. Topic announced in semester or term schedule of classes. May be repeated for credit with a different topic. Prerequisite: Permission of instructor.

ENGINEERING GRAPHICS

Open to Upperclass and Graduate Students

538 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.

ENGINEERING METALLURGY

Open to Upperclass 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.
Materials 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 373.

584 Casting Design 3 hrs.
Engineering design of castings based on stress analysis and capabilities of production casting processes. Prerequisites: IEGM 280, ME 256.

589 Studies in Cast Metals Technology 1-3 hrs.
Metallurgy of ferrous castings and melting, solidification, risering gating, ferrous castings, sand control, and sand cases. Prerequisite: Consent of instructor.

Open to Graduate Students Only

670 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. Prerequisite: Consent of instructor.

Mechanical Engineering (ME)

Johnson, Chairperson; Professor Bluman; Associate Professors Gill, Hamelink, Ryan, Schubert.

Open to Upperclass and Graduate Students

521 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: ME 221. (Offered alternate years.)

533 Industrial Ventilation 3 hrs.
Design and testing of systems to control air quality in industrial plants. Prerequisite: Approval of instructor. (Offered alternate years.)

535 Advanced Product Design 3 hrs.
An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout. Prerequisite: ME 360, 453. (Offered alternate years.)

555 Mechanism Synthesis 3 hrs.
Type, number, and dimensional synthesis of planar mechanisms by graphical and analytical methods. Computer design using optimization methods. Prerequisite: ME 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: ME 355 and 360, or MATH 274.

559 Sound, Noise, and Vibration Control 3 hrs.
The effects of acoustical energy on the environment, methods of measurement, and governmental regulations are studied. No prerequisites.

560 Engineering Analysis 3 hrs.
Application of vector analysis and differential equations to the solution of complex engineering problems. Prerequisite: ME 360 or equivalent.

Open to Graduate Students Only

630 Advanced Fluid Dynamics 3 hrs.
Modern developments in fluid dynamics both in the areas of compressible and incompressible fluid flow. Topics include: Kinematics of fluid motion, laminar and turbulent flow in pipes, fluid machinery, and supersonic flow. Prerequisites: ME 430, MATH 274. (Offered alternate years.)

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

653 Advanced Strength of Materials 3 hrs.
Biaxial and traxial stress and strain. Mathematical analysis of stress formulas. Stress concentrations. Theories of failure. Application of energy principles to deflection and indeterminant cases. Prerequisites: ME 353 and 360. (Offered alternate years.)

654 Advanced Testing of Materials 3 hrs.
Elements of simple linear elasticity theory including analysis of stress 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 studied in the laboratory. Prerequisites: ME 353, 360, MATH 274. (Offered alternate years.)

660 Advanced Control Systems 3 hrs.
Analysis of nonlinear systems and systems compensation. Application to fluid dynamics, pneumatics, electrical circuits, and inertial guidance. Prerequisite: ME 360 or EE 470. (Offered alternate years.)

695 Advanced Topics in Mechanical Engineering:

Variable Topics 1-4 hrs.
A specialized course dealing with some particular advanced area of Mechanical Engineering not included in other course offerings. May be repeated for credit with a different topic up to six credits. Prerequisite: Consent of instructor.

697 Problems in Mechanical Engineering 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 chairperson and faculty member. Application must be submitted and approved prior to the election of the course. May be repeated up to maximum of six hours.

Paper Science and Engineering (PAPR)

Valley, Head; Professor Janss; Associate Professors Fisher, Kline, Peterson.

Open to Upperclass 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 theoretical behavior and chemical properties. Methods for characterization of bulk and solution properties of polymers is considered in detail. Prerequisite: CHEM 361 or 365.

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.
A unified consideration of the pulp and paper plant and its subsystems, stressing operating efficiencies from the engineering viewpoint. Includes design considerations, material and energy balances, power distribution, evaluation of equipment performance, and typical operating costs. Prerequisites: PAPR 202, 203, and 307 (or equivalent).

590 Instrumentation and Process Control 3 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.

591 Instrumentation and Process Control 3 hrs.
Continuation of course PAPR 590.

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 are presented. Methods of characterization and significance of molecular parameters are included.

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

700 Master's Thesis 6 hrs.

710 Research — Master's and Specialist 2-6 hrs.

712 Professional Field Experience 2-12 hrs.
College of Arts and Sciences

TILMAN C. COTHRAN,
Associate Dean

JAMES P. ZIETLOW,
Associate Dean

Graduate Offerings:
Anthropology
Biology
Biomedical Sciences
Black Americana Studies
Chemistry
Communication Arts and Sciences
Computer Science
Economics
English
Geography
Geology
History
Languages, Modern and Classical
Linguistics
Mathematics
Medieval Studies
Philosophy
Physics
Political Science
Psychology
Religion
Science Division
Social Science Division
Sociology
College of Arts and Sciences

The College of Arts and Sciences offers a variety of subjects that familiarize the graduate student with the world of ideas, and deepen his/her understanding of man's cultural heritage. Graduate programs are offered in Anthropology, Biology, Biomedical Sciences, Biostatistics, Chemistry, Communication Arts and Sciences, Computer Science, Earth Science, Economics, English, Geography, Geology, History, Languages, Mathematics, Medieval Studies, Physics, Political Science, Psychology, Public Administration, Sociology, and Statistics.

The College of Arts and Sciences cooperates with the College of Education in offering the following teaching education programs: Teaching of English, Teaching of Geography, Teaching of Mathematics, Teaching of the Academic Study of Religion, Teaching of Science, Teaching of Social Sciences, and Teaching of Speech Communication.

Arts and Sciences (A-S)

Open to Upperclass and Graduate Students

AMERICAN STUDIES

A-S 501 Studies in American Culture 1-4 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.

ENVIRONMENTAL STUDIES

EVS 550 Contemporary Environmental Projects 1-4 hrs.
Contemporary Environmental Projects is designed for students who wish to carry on advanced interdisciplinary work in Environmental Studies under the direction of a faculty member. Work will be geared to a single project in which there is outside investigation, research, field experiences, and/or workshop experiences. Students selecting this course will work on projects especially designed for their programs. The goal of this course is to identify a problem, outline the approach to study, and to consider paths to solving the problem. The course is repeatable for up to eight hours of academic credits. Prerequisite: Consent of instructor.

FOREIGN STUDIES SEMINARS

Students may receive up to six hours credit in any combination of departments as described provided the seminar is planned with that combination in mind. No student will receive credit under any of the course plans indicated here for work done in seminars planned and conducted by other institutions or for work done independent of seminars planned by the College of Arts and Sciences.

A-S 504 Foreign Studies Seminar 1-6 hrs.
Seminars in the Social Sciences conducted outside the U.S. 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 chairperson of the department prior to registering for the seminar. May be repeated for credit.

A-S 505 Foreign Studies Seminar 1-6 hrs.
Seminars in the Humanities conducted outside the U.S. Students completing such a seminar may receive credit in the departments of Communication Arts and Sciences, English, Languages (Modern and Classical), Linguistics, Philosophy, Religion, and the departments of the College of Fine Arts if the credit is approved by the chairperson of the department prior to registering for the seminar. May be repeated for credit.

Anthropology (ANTH)

R. J. Smith, Chairperson; Professors W. Garland, Greenberg, Jacobs, Maher; Associate Professors E. Garland, R. Loeffler, Sundick; Assistant Professors Cremin, Hirth, E. Loeffler.

Open to Upperclass 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 Circumpoliar) 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: Varies with topic.

501 The Rise of Civilization 3 hrs.
The archeological science 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, or consent of instructor.

502 The Origins of Agriculture 3 hrs.
An intensive study of the human transition from hunting-gathering to cultivation during the post-Pleistocene period. Topics to be treated include: both archeological and botanical models to explain these processes; the comparison of agricultural systems in various parts of the world; the geographic distribution and biosematics of selected cultivars; and the cultural systems which have arisen from the economic foundation of plant domestication. Prerequisite: ANTH 210 or consent of instructor.

510 Field Methods in Archeology I 3 hrs.
Instruction in the archeology of a particular area (e.g., the Great Lakes, Midwest Riverine area) with emphasis on cultural processes and ecological relationships as these emerge during the course of field work on the specific problems chosen for investigation in a given field season. May be repeated for credit. Prerequisite: Consent of instructor.

511 Field Methods in Archeology II 3 hrs.
Implementation of the field research strategy. Instruction in the basic skills of site excavation, mapping, and retrieval and recording of data; also laboratory analysis, including classification and cataloguing of artifacts. Depending upon the problem orientation in a given field season, instruction may include site location survey, site sampling techniques, and paleoenvironmental reconstruction. 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, 240, or consent of instructor.

522 Methodology in Ethnographic Research 3 hrs.
Emphasis is on quantitative and qualitative research materials as the basis for successful description and hypothesis testing in cultural anthropology. Considers the importance of research design and operations in generating more accurate observations, on which theory building and testing rest. Includes introduction to ethnographic research techniques: e.g., participate-observation, structured and semi-structured interviews, questionnaires, sampling, technical equipment, etc. Prerequisite: ANTH 240, 220, or consent of instructor.

523 Ethnographic Field Session 3-6 hrs.
Supervised field examination of human communities in respect to specific ethnographic questions, analysis of field data, and report writing. May be repeated for credit up to six hours total credit. Prerequisite: ANTH 522 or equivalent, and consent of instructor.

531 Medical Anthropology 3 hrs.
An examination of anthropological research relating to cross-cultural beliefs and practices about health and illness, and the relationship between folk and scientific medical care systems. Included is analysis of public health programs in Western and developing societies, the effect of institutional/bureaucratic social structure on the adequacy of health care systems, and patient's rights in this age of extraordinary medical technology. Prerequisites: ANTH 220, 240, or consent of instructor.

532 Culture and Personality 3 hrs.
An investigation of the interaction of culture and personality with particular attention to the role of culture as a force in the development of the individual. Prerequisite: ANTH 220, 240, or consent of instructor.

534 Peasant Societies in the Developing World 3 hrs.
A cross-cultural study of peasants as a cultural type, with emphasis on the contemporary world. Includes discussion of the history and development of peasant societies, but theoretical and substantive concentration is on the role of peasant groups in urbanized national societies. Prerequisite: ANTH 220, 240, or consent of instructor.
535 The Anthropology of Religion 3 hrs.
An examination of anthropological theories and findings relating to the origin, nature, and function of religion as a universal category of culture. A scientific, cross-cultural consideration of religious beliefs and practices and their relation to concepts of the nature of the universe. The role of religion in revitalistic reactions to culture contact. Prerequisite: ANTH 220, 240, or consent of instructor.

536 Cultural Evolution 3 hrs.
An inquiry into the dynamics of culture through a study of selected theories of cultural change and their application to concrete situations such as the rise of complex civilizations and the reactions of non-Western societies to contact with the West. Prerequisite: ANTH 220, 240, or consent of instructor.

537 Political Anthropology 3 hrs.
Theoretical and descriptive analysis of the political aspect of social organization, ranging from primitive to complex societies; the relationship of politics to technological development, habitat, symbolic systems, and other aspects of social organization. Prerequisite: ANTH 220, 240, or consent of instructor.

538 Legal Anthropology 3 hrs.
A study of law through the theory and method of comparative legal dynamics. The relation of law to the whole of culture; the function of law as revealed in the comparative study of societies ranging from simple to complex. Prerequisite: ANTH 220, 240, or consent of instructor.

539 Economic Anthropology 3 hrs.
A thorough examination of the relationship between economic and anthropological 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 220, 240; ECON 201 and 202, or consent of instructor.

540 Social Impact Assessment 3 hrs.
The application of anthropological knowledge to assess and evaluate the sociocultural effects of proposed developmental policy, programs, or projects as they relate to environmental impact assessment while in the planning stage, to improve project design, and mitigate undesired secondary effects.

545 Topics in Ethnology 3 hrs.
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 3 hrs.
Insights into the formal and informal educative processes in cultural and cross-cultural perspectives. Conceptualization of education as a replicative and innovative aspect of all individual and group development.

550 The Primates 3 hrs.
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 3 hrs.
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 3 hrs.
A consideration of the biological relationships of specific population groups of general problems in human biology (e.g., human genetics, human growth and constitution, palaeopathology, dental anthropology). Topic will be announced each semester. May be repeated for credit with different topics. Prerequisite: ANTH 250.

598 Readings in Anthropology 1-4 hrs.
Independent study arranged in consultation with an instructor. Intended for advanced students with good academic records. One to two hours credit per semester, cumulative to four hours. Prerequisite: Consent of instructor.

Open to Graduate Students Only

601 Seminar in Cultural Anthropology 3-4 hrs.
Intensive study of the contemporary issues in 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 Seminar 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 Seminar 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)

Pippen, Chairperson; Professors Brewer, Goodnight, Holt, Schultz, Open to Upperclass 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. These studies are carried out outside of class time, utilizing procedures outlined by the instructor. Primarily for teachers. Prerequisite: Consent of instructor.

501 Ecological Adaptations of Organisms 3 hrs.
An investigation of the many environmental factors (light, temperature, time, magnetism, and others) that influence the life and behavior of organisms. A study will be made of the strategies used by organisms to adapt to these factors. Adaptation will be considered as adjustments in both behavior and physiology. Ecological interactions between the environment and the organisms at the molecular, cellular, and organism levels will be studied. Plants, animals, and micro-organisms will be used as examples. Prerequisite: Consent of instructor.

502 Human Ecology 3 hrs.
A study of the man-dominated biotic community of civilization and its interrelationships. Lectures, assigned readings, group and individual field work. Prerequisite: At least a minor in Biology or consent of instructor.

507 The Biology of Addictive Drugs 3 hrs.
The principles of pharmacology (mode of action and effects of drugs) are related to abuse drugs, such as marijuana, alcohol, heroin, methadone, LSD, amphetamines (Speed), and cocaine. The course is designed primarily for non-science majors to give them an understanding of the objective and subjective effects of drug use. Legal and social implications of illegal drug use are discussed. No prerequisites.

508 Recent Advances in Biology 3 hrs.
Recent research findings at the frontiers of Biology reported in periodicals, symposia, and scientific meetings. Prerequisite: At least twelve hours in Biology.

509 Evolution 3 hrs.
An consideration of the evidence for and the principles involved in the evolution of plants and animals, including man. Genetic principles needed for an understanding of evolution are covered. Prerequisite: BIOL 101 and 102.

512 Environment and Health Problems 3 hrs.
The impact of the environment on the health of the individual and of populations, the resulting physiological and anatomical difficulties, and the various means employed in meeting these challenges.

515 Plants for Food and Industry 3 hrs.
Representative cereal, fiber, and industrial plants of primary economic
importance will be examined, such as wheat, rice, wood and its products, soybeans, and grapes. Following a discussion of plant composition and of the main variables involved in growing plants, each selected plant will be studied with regard to its botanical characteristics, its distribution, the special aspects of its composition responsible for its economic prominence, and some of its cultural practices and problems. The course is enriched with demonstrations. Prerequisites: BIOL 102, CHEM 101, or consent of instructor.

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 317 or consent of instructor.

521 Physiology 3 hrs.
Studies in the classification, structure, physiology, ecology, and economic importance of the fresh-water algae. Prerequisite: BIOL 301.

523 Heredity and Plant Breeding 3 hrs.
Principles of plant breeding. Quantitative genetics, population genetics, systems of mating, heterosis, and the genetics of pathogenic organisms are discussed. The basic unity of methods used in breeding self-pollinated and cross-pollinated species is considered. Prerequisite: Eight hours of Biology.

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 and one year of Chemistry or consent of instructor.

526 Plant Diseases 3 hrs.
Considers plant diseases as a set of phenomena within the much larger complex of the biological sciences. Rather than being a catalog of diseases, their causes, characteristics and control, it portrays plant pathology in terms of general biological concepts. Prerequisite: Eight hours of Biology.

527 Plant Physiology 3 hrs.
Investigations into plant functions. Basic principles are examined intensively. Advantage is taken of the discoveries and unifying principles of modern biochemistry. Prerequisites: BIOL 102, CHEM 101, or consent of instructor.

528 Biology of Non-Vascular Plants 3 hrs.
The study of classification, ecology, and reproductive cycles of algae, fungi, and bryophytes. Methods of growing these plants for research occupy a part of the 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 is required. Prerequisite: At least twelve hours of Biology or consent of instructor.

530 Environmental Education 3 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 this 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.

533 Neuroendocrinology 3 hrs.
Neuroendocrinology is designed to acquaint the student with the interrelationships of the environment and the organism, as mediated by the neuroendocrine system. The physiology and morphology of the neuroendocrine system will be studied, as well as the chemical structure of the neurohormones. Regulation of cellular chemistry by the neuroendocrine products will be emphasized. Prerequisites: A course in physiology, organic chemistry, or consent of instructor.

535 Plant Nutrition 3 hrs.
The elements essential for plant growth and development of their primary functions in the metabolism of the plant are examined. The uptake of ions and their translocation are studied, while maintaining a balance between theory and application. The cycling of elements in nature provides perspectives into ecological aspects of plant nutrition. The course is enriched with demonstrations. Prerequisites: BIOL 102, CHEM 101, or consent of 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. Includes an introduction to the ethological point of view. One student project. Prerequisite: Eight hours of Biology or consent of instructor.

541 Invertebrate Zoology 3 hrs.
A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: Twelve hours of Biology, including BIOL 101.

542 Entomology 3 hrs.
A general study of insects, their structure, classification, life histories, ecological relationships, and economic importance. Collection and identification of local species is included. Prerequisite: Eight hours of Biology, including BIOL 101.

543 Protozoology 3 hrs.
Field and laboratory studies of both free-living and parasitic protozoans, including taxonomy, morphology, life histories, and ecology. Prerequisite: BIOL 101.

544 Developmental Biology 3 hrs.
Theories and phenomena of differentiation, cytodifferentiation, and morphogenesis; concepts of inducers and organizers. Experimental studies of embryos of various animals or study of some specific organs during development, including tissue culture techniques. Prerequisite: BIOL 343 or consent of instructor.

546 General Cytology 3 hrs.
A study of the nuclear and cytoplasmic structures of the cell, including cytochemistry and histochemistry. Principles of classical and electron microscopy will be considered. Prerequisites: Eight hours of Biology. A course in physics and organic chemistry are highly recommended.

547 Ornithology 3 hrs.
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.

550 Plant Anatomy 3 hrs.
An embryological and histological approach to the study of morphogenesis in seed bearing plants. Primary emphasis will be placed on monocots and dicots. Prerequisites: BIOL 102.

551 Parasitology 3 hrs.
A study of parasites and host-parasite relationships illustrated by representatives of the major parasite groups. Special attention is given to the parasites of man. Prerequisite: Twelve hours of Biology including BIOL 101.

552 Plant Ecology 3 hrs.
A consideration of the organization of vegetation and causal relationships between environmental factors and vegetation. Prerequisites: BIOL 301 and a course in systematic botany.

553 Limnology 3 hrs.
Biological, chemical, and physical aspects of lakes, ponds, and streams. Ecological relationships of invertebrate animals and lower plants are emphasized. Prerequisite: BIOL 101 and 102; CHEM 101 recommended.

554 Water Pollution Biology 3 hrs.
A comparison of organisms which live in clean waters as contrasted to those in polluted waters. Streams, lakes, and ponds will be studied. Water conditions will be analyzed, and the use of biological indicators will be studied. The course will include field trips, laboratory work, and lecture presentations. Prerequisites: BIOL 101 and 102.
57 Tropical Marine Ecology 3 hrs.
A study of the interrelationships of marine life off the coast of Central America. 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 instructor.

58 Tropical Terrestrial Ecology 3 hrs.
A study of the terrestrial ecology in various regions of Central America. Several locations will be selected to investigate the structure and dynamics of a variety of tropical ecosystems. Prerequisite: BIOL 301 and consent of instructor.

59 Radiation Biology 3 hrs.
A study of the fundamentals of radiobiology, including radioactive decay, radiation measurements, isotopic technology as well as radiation and interaction in living matter, health and safety regulations in the laboratory. Prerequisites: Twelve hours of chemistry and consent of instructor.

561 Biology of Lower Vertebrates 3 hrs.
The biology of lower vertebrates with special reference of 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 BIOL 561.

598 Readings in Biology 1-3 hrs.
For students who wish to carry on advanced work in special fields. Prerequisite: Consent of instructor.

599 Independent Studies in Biology 1-4 hrs.
For students who wish to carry on advanced work in special fields. Prerequisite: 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: Variable Topics 2-6 hrs.
Several seminars in various areas of biology will be offered. The student's record will indicate the actual title of the seminar. May be repeated for credit. Prerequisite: Consent of instructor.

603 Seminar in Substance Abuse I 3 hrs.
An interdisciplinary seminar designed to reflect broadly conceived intervention strategies ranging from primary prevention to rehabilitation of the addict. The basic training in the principles of intervention and clinical practice will continue to be taught within the student's basic professional discipline. In part, the seminar will be used to elaborate upon the applications of these principles to the problems of substance abuse. This course is cross-listed with Counseling-Personnel, Psychology, Social Work, and Sociology. Prerequisite: Admission to Specialty Program in Alcohol and Drug Abuse, or consent of instructor.

604 Seminar in Substance Abuse II 3 hrs.
Continuation of BIOL 603. This course is cross-listed with Counseling-Personnel, Psychology, Social Work, and Sociology. Prerequisite: Admission to Specialty Program in Alcohol and Drug Abuse, or 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.

Biomedical Sciences (BMED)

Buthala, Chairperson; Professor; Wood; Associate Professors, Beuving, Eisenberg, Flcsor, Friedman, Josten; Assistant Professors, Ginsberg, Mcintire.

Open to Upperclass and Graduate Students

518 Endocrinology Fall '79, 3 hrs.
A survey of the hormonal integration of organ-system function, including the chemical nature of these secretions, the cellular and biochemical mechanisms of hormone actions, and the endocrine feedback control mechanisms. The regulatory nature of hormones in developmental processes, in adaptation, and in disease processes will be stressed. Prerequisite: BMED 350; biochemistry recommended.

520 Human Genetics Winter '78, 3 hrs.
The principles of human heredity with particular emphasis on the clinical significance of biochemical and chromosomal variation. Abnormalities of development and methods of risk analysis in genetic counseling are discussed. Prerequisites: BMED 250, BMED 209, or consent of instructor; biochemistry recommended.

522 Cyto Genetics Winter '79, 3 hrs.
The molecular, morphological, and dynamic aspects of chromosomes, nucleus, and allied structures in the nucleate organisms are considered. The chromosomal basis of transmission genetics involving normal, mutant, and ploid genomes is presented. Prerequisites: BMED 250 or equivalent.

524 Microbial Genetics Fall '78 and '79, 3 hrs.
A molecular approach to microbial genetics, dealing primarily with bacterial and viral systems. Emphasis is placed on current literature and on the application of concepts of biomedical research. Prerequisites: BMED 250 and BMED 312 or consent of instructor; biochemistry recommended.

531 Biology of Aging Fall '78, 3 hrs.
This course is designed to provide non-majors with an understanding of the aging process. The lectures will emphasize the anatomical, physiological, and molecular changes which occur in cells and organs with aging. Clinical applications are introduced where they provide additional insight into the aging process.

532 Bacterial Physiology Winter '78 and '79, 3 hrs.
Lectures on bacterial cytology, physiology, and metabolism with an emphasis on biochemical aspects. The course is designed for advanced undergraduates and beginning graduate students. No general textbook is required and considerable reference is made to the scientific literature. Prerequisites: BMED 312 and a course in biochemistry recommended.

534 Virology Winter '78 and '79, 3 hrs.
A study of the classification, structure, and chemistry of viruses. Emphasis will be placed on the cell-virus interaction leading to the disease process or cellular alterations in mammalian systems. Prerequisite: BMED 312; biochemistry recommended.

536 Immunology Fall '78 and '79, 3 hrs.
A study of the biological and biochemical mechanisms of the immune response and the chemical nature of antibodies, antigens, and their interaction. Emphasis will be placed on in vitro and in vivo humoral and hypersensitivity reactions. Prerequisites: BMED 350; biochemistry recommended.

537 Histology Winter '78 and '79, 3 hrs.
A study of the function and microscopic anatomy of mammalian tissues.

540 Cell and Organ Culture Fall '78 and '79, 3 hrs.
The purpose is to introduce the student to the fundamental procedures of cell and organ cultures of mammalian tissue. The application of cell and organ culture to routine clinical, research, or drug screening procedures will be emphasized, as well as specialized procedures employed to solve specific biomedical research problems. Prerequisite: Consent of instructor.

554 Histological Techniques Spring '78 and '79, 2-3 hrs.
A variety of techniques, including celluloid, paraffin, decalcification, and special stains, will be used to prepare mammalian tissues for histological examination. Prerequisite: BMED 537 or consent of instructor.
555 Human Environmental Physiology Fall '78 and '79, 3 hrs.
A study of the physiological and behavioral adaptation and responses of organisms to external environmental factors. Some attention is given to artificial environments and the problems involved. Prerequisite: BMED 350.

560 Reproductive Physiology Winter '78 and '79, 3 hrs.
An introduction to the physiological events associated with reproduction in higher animals. Emphasis is placed upon reproduction in mammals with constant comparison among mammals and between these and other animal groups. This course also introduces the subject of contraception and population control, artificial insemination, and birth defects. Prerequisite: BMED 350.

572 Biology of Neoplasia Fall '78, 3 hrs.
A comprehensive examination of the biological basis of cancer, using animal models as examples with application to its expression in humans. This multidisciplinary subject will utilize information from the areas of immunology, biochemistry, histology, virology, and cell biology to give a current view of this disease. Prerequisite: BMED 350; biochemistry recommended.

574 Regulation of Cellular Differentiation Winter '79, 3 hrs.
A study of the molecular events which occur during the development of an organism from a single cell to a multicellular form. These concepts include the role of ions, cell surface components, and cyclic nucleotides on the differentiation of cells. Prerequisites: Cell biology, Genetics. Not repeatable for credit.

598 Readings in Biomedical Sciences 1-3 hrs.
599 Independent Studies in Biomedical Sciences 1-3 hrs.
For students who wish to carry on advanced work in special fields. Prerequisite: Consent of instructor.
Open to Graduate Students Only

601 Special Topics 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 Biomedical Sciences Seminar Spring '78, 2-6 hrs.
Several seminars in various areas of Biomedical Sciences will be offered. The student's record will indicate the seminars in which he/she has participated. May be repeated for credit. Prerequisite: Consent of instructor.

613 Sensory Physiology Fall '79, 3 hrs.
A study of basic function and recent developments with emphasis on mammalian systems. Prerequisite: BMED 240 or equivalent.

618 Endocrinology Laboratory Winter '78 and '79, 3 hrs.
Laboratory experience in endocrinological concepts involved in endocrine research and clinical testing. Prerequisite: BIOL 518 or 560.

620 Issues in Genetics Fall '78 and '79, 1-3 hrs.
Genetics has an increasing role in determining human health and survival. Selected topics which influence man's genetic fate will be considered by different instructors in subsequent semesters. Prerequisites: Two 500-level Genetics courses. Course repeatable for credit.

630 Electron Microscopic Techniques Spring '78 and '79, 3 hrs.
A technique oriented laboratory stressing the various preparatory procedures employed for viewing biological materials. Prerequisite: Consent of instructor.

631 Experimental Microbial Physiology Winter '78 and '79, 3 hrs.
An experimental approach to microbial physiology, biochemistry, and molecular biology with major emphasis on laboratory techniques. Prerequisite: Consent of instructor.

632 Advanced Techniques in Electron Microscopy Fall '78, 4 hrs.
A laboratory course emphasizing currently developing technology. This course is designed for graduate students who have a working knowledge of electron microscopy and its application to biologic problems. The course will be personalized instructions in techniques of: autoradiography; protein tracer, such as peroxidase, ferritin, lanthanum, etc.; special tissue preparations, such as in vivo perfusion, varied fixatives, varied embedding material, etc.; and particulate materials preparation. The student will conduct detailed examinations of his/her preparations and prepare critical critiques.

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.

Black Americana Studies (BAS)

500 Black Humanism 3 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?

598 Individual Study 2-4 hrs.
Independent research or investigation of a specific topic related to the Black experience. May be repeated for credit.

600 Black Americana Studies — Seminar 4-6 hrs.
In-depth study of specific areas of Black American life and culture. Since Black 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)

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, 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 or 436.
530 Introduction to Spectroscopy and Molecular Structure
Introduction to the basic principles of atomic and molecular spectroscopy with emphasis on quantum concepts; interpretation of spectra in relation to changes in atomic and molecular energies; elucidation of molecular structure from interactions with electromagnetic radiation in the ultraviolet, visible, infra-red, and u-wave regions and with magnetic fields as applied to nuclear resonance and electron spin resonance. Prerequisite: CHEM 431.

533 Introduction to Physical Chemistry
Theory and applications of chemical structure, energetics, and rates and mechanisms of processes as a basis for understanding the principles of chemistry. This course may not be applied to the requirements for a major in chemistry or for a graduate curriculum in chemistry. Prerequisites: Sixteen hours of chemistry; MATH 123, PHYS 111, or 211.

550 Biochemistry I
A thorough study of the chemistry and properties of proteins, and nucleic acids, including a discussion of enzymes and biochemical energetics.

552 Biochemistry I with Laboratory
This course consists of 550 plus lab. Experiments involve more advanced techniques and instrumentation than in 456 laboratory. Emphasis will be on purification and properties of proteins and nucleic acids.

554 Biochemistry II

556 Biochemistry II with Laboratory
This course consists of 554 plus laboratory. Experiments involve more advanced techniques than in 456 laboratory. Emphasis will be on metabolism of carbohydrates, lipids, proteins, and nucleic acids.

560 Qualitative and Spectroscopic Analysis of Organic Compounds
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 and twenty-four hours of chemistry.

564 Drugs and Pesticides
This course introduces students to the chemical nature and uses of drugs and pesticides. Abuses and potential toxicological hazards are also discussed in respect to biological-chemical properties and the behavioral-sociological implications.

570 Polymer Chemistry
The aspects of macromolecular chemistry which are significantly different from the chemistry of small molecules are studied. In particular, mechanisms and techniques involved in the synthesis of macromolecules, and the structure, composition, mechanical properties, and solution properties of polymers are studied in terms of the organic, physical, and analytical chemistry involved. Prerequisites: CHEM 361 or 365, and CHEM 431 or 535.

580 History of Chemistry
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 of organic.

590 Special Problems in Chemistry
Research work on a problem in chemistry in association with a faculty member. May be repeated for credit. Prerequisites: Twenty-four hours of chemistry, which includes CHEM 436, and approval of the department chairperson and a faculty director.

Open to Graduate Students Only

601 Graduate Seminar
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
Content of course will vary depending on needs and interest of the students. Topics may include: glassblowing, laboratory electronics, vacuum line, manipulations under controlled atmosphere, separation and purification, and radio-chemical techniques. May be repeated for credit. Prerequisite: Approval of instructor.

610 Advanced Inorganic Chemistry
Covers the principles in inorganic chemistry and the chemical elements. Such topics as extranuclear structure of the atom, 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 of their compounds. Prerequisite: CHEM 510.

611 Advanced Inorganic Chemistry
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
A cooperative investigation of one or more topics of major consequence in 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
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
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
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
Principles and characteristics of construction and design for chemical and optical instruments. Prerequisite: CHEM 520.

629 Topics in Analytical Chemistry
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
Introductory quantum mechanics with particular emphasis on its use in special studies and the understanding of chemical bonding. The Boltzmann distribution law and its applications to kinetic molecular theory and statistical mechanics. Prerequisite: CHEM 431.

633 Chemical Thermodynamics
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
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.

639 Topics in Advanced Physical Chemistry
This is a lecture course, the content of which may vary from year to year depending on the lecturer. Anticipated topics are: (a) higher 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 modern techniques for determining these aspects of enzyme function. Prerequisite: CHEM 550.

655 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. 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.

662 Stereochemistry 3 hrs.
A consideration of shapes of molecules and the isomeric consequences. Atomic and molecular orbital and resonance interpretation of molecular shape. The stereochemical relationships in substitution and alkene addition reactions will be considered. Prerequisite: CHEM 361.

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 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.

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.
735 Doctoral Research 2-10 hrs.

Communication Arts and Sciences (CAS)

Dileker, Chairperson; Professors Brown, Buys, Helgesen, Smith; Associate Professors Crane, Heling, Jaksa, Pagel, Robeck, Rossman, Stech, Walton; Assistant Professors Cottrell, Northouse, Rhodes, Still, VanHoeven, Washington, Woodworth, Yelsma.

Open to Upperclass and Graduate Students

505 Special Topics in Communication 1-3 hrs.
Advanced group study of special topics in communication education, interpersonal and organizational communication, mass communication, oral interpretation, and film. Many of these special courses are organized in response to special needs or interests of students on campus, in the community, and in the region. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and a full listing of topics may be obtained from the Departmental offices, 300 Sprau Tower. Six hours of 505 and 605 may be accumulated as credit toward a Master of Arts degree in CAS.

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 take one or all topics for credit.

Possible topics include:
- Oral Interpretation of Shakespeare
- Oral Interpretation of the Bible
- Oral Interpretation of Selected Long Literary Forms

530 Studies in Attitude Change: Variable Topics 3 hrs.
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 Schedule of Classes.
- a. Ethics and Freedom of Speech
- b. Historical Basis of Rhetoric

Analysis in depth of continuing issues in mass communication. Topics vary from semester to semester and students may take one or all topics for credit. Topics include:
- a. Teaching Mass Media in Secondary Schools
- b. Television and Politics

541 Broadcast Regulation 3 hrs.
The laws and issues of broadcasting regulation regarding licensing, ownership, programming, political broadcasting, advertising, and the role of the FCC, the FTC, the NAB, and other agencies and regulatory departments.

542 Mass Media and the Child 3 hrs.
Assesses the impact that mass media fare from radio, television, films, comics, and other media may be having on the minds and behaviors of children.

543 Mass Communication and Social Change 3 hrs.
The course examines the role of the mass media in diffusing information and persuasive messages, and the effects of these messages on individuals, groups, and institutions. The fields of politics, advertising, and public relations are studied from the communication/change viewpoint of the practitioner and the consumer.

544 Mass Communication and Public Affairs 3 hrs.
The course examines the role of the media in covering public affairs news and disseminating it to the public. Questions related to media access, fairness, media regulation, and message production are discussed in light of current events.

545 Television Criticism 3 hrs.
Examines the various functions and writings of contemporary television critics, and establishes criteria for evaluating television programs and program criticism. Students will view and analyze various television program types, including documentary, drama, visual essay, and other entertaining and educational programs.

546 Mass Entertainment 3 hrs.
This course examines the role and function of mass entertainment fare in modern society. Major topics include mass entertainment as part of leisure; the social and psychological functions of mass entertainment; measuring mass taste; and in-depth study of popular mass media formats such as soap operas, detective, western, popular music, etc.

547 Organizational Uses of Radio and Television 3 hrs.
Applications of radio and TV technology for the business professional, educator, media specialist, and the clinician. Utilization of electronic media for training, research, observation, and instruction. In addition to required text materials, students must provide supplies averaging about $10.00 per student.

548 Broadcast Management 3 hrs.
A study of the duties of a broadcast station manager. Students examine philosophies and theories of management, programming, audience research, budgeting and accounting principles, sales and regulatory functions.

549 Public Relations and Organizations 3 hrs.
The course will examine the role of public relations and public information in a variety of organizations with a communication theory perspective. The course is designed to prepare individuals for positions in public relations and public information, or for other positions in organizations concerned with the flow of information across organization boundaries.

560 Studies in Communication Education: Variable Topics 3 hrs.
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 take one or all topics for credit.

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. The undergraduate student must have completed at least twelve hours of work in CAS or obtain consent of instructor. Prerequisite: ED 300. Offered Fall semesters only.

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. Prerequisite: ED 301. Offered Winter semesters only.

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 course carries separate credit, and a student may take any or all of the offerings listed under CAS 570. In addition to the topic listed, additional topics are offered from time to time, and will be listed in the Schedule of Classes.

571 Interpersonal Theories of Communication 3 hrs.
A study of the dynamics of interpersonal communication from various theoretical perspectives. Emphasis is on the assumptions, conceptualizations, and models which explain how people interact at the content and relationship levels.

572 Non-Verbal Communication 3 hrs.
The course examines theory and research in the nature and function of nonverbal message systems. Topics include: the role of nonverbal communication in the developmental stages of humans; individual differences in ability to interpret messages; the relationship of nonverbal communication to the concept of culture; extensions of a person such as space, clothing, possessions; and specific messages related to the face and body.

573 Personality and Communication 3 hrs.
The course examines the major personality theories as they contribute to an understanding of the role of communication in self-development. Particular emphasis is given to humanistic theories.

574 Intercultural Communication 3 hrs.
An examination of the factors contributing to effective communication in an intercultural context. The course focuses on such topics as ethnocentrism, cultural perceptions, values and beliefs, language and meaning, and nonverbal factors. Communication systems of selected countries are described and analyzed.

581 Communication in Organizations 3 hrs.
A study of communication practices and problems found within organizations with emphasis given the three aspects of organizational communication: development of theoretical perspectives; application of communication skills; and, awareness of audit and research methodologies. Students will study the relationship between communication and management/employee effectiveness.

582 Group Problem Solving 3 hrs.
Study and practice of the dynamics of groups of various kinds, as well as the methods of arriving at group decisions. Includes the understanding of leader and participant roles.
social conflict. Theories of conflict are examined, and an exploration of the sources that stimulate conflict in humans is made.

### Computer Science (CS)

**Williams, Director; Professor Mengher; Associate Professor Herman; Assistant Professors Kerstetter, Motzikin.**

**Open to Upperclass and Graduate Students**

#### 506 Scientific Programming (Jointly listed with MATH) 3 hrs.

Designed to give preparation in the organization and general use of digital computers for scientific and engineering computations. The FORTRAN language and a second language will be used. Problems such as series evaluation, multiplication and inversion of matrices, numerical integration and pointwise differentiation, as well as general numerical approximation will be prepared for the computer. Prerequisites: MATH 230 or MATH 272.

#### 508 MACRO-10 Programming 3 hrs.

A study of MACRO-10, the assembly language of the PDP-10 computer. Prerequisites: CS 306 or CS 506.

#### 509 Data Structures 3 hrs.

Introduces and compares alternatives for representing and manipulating data. Structures studied include stacks, queues, deques, linked lists, circular lists and trees, as well as sequential storage. Topics include tree transversals, hash functions, Boolean functions, graphs, and garbage collection. Prerequisites: CS 506 and CS 508.

#### 544 Advanced Programming 3 hrs.

A course in advanced computer programming which will provide practice in designing and programming large software systems. Concepts covered will include team programming, top down program design, and structured programming. Emphasis will be placed on solution of large software projects using the team approach. A variety of programming languages may be used. Prerequisites: CS 342 or CS 509.

#### 554 Operating Systems 3 hrs.

The course deals with statistical and mathematical techniques and applications that stimulate conflict in humans is made.

### Economics (ECON)

**Professors Bowers, Copp, Ho, Junker, Kripalani, Ross, Schiel, Zied; Associate Professors Gardner, Wend; Assistant Professors Harl, Payne, Zinn.**

**Open to Upperclass and Graduate Students**

#### 500 Continuing Education in Economics: Variable Topics 1-3 hrs.

Application of economic principles and analysis to selected topics of interest to students in Continuing Education courses and workshops. Topics will vary and course may be repeated twice. May not be counted in fulfilling economics major, minor, or M.A. requirements.


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. Prerequisites: 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.

An introductory course to acquaint the student with the application of basic mathematical concepts to economic analysis, including such topics as revenue curves, cost curves, capital assets, growth models, and multipliers independently the study of some topic of special interest. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approval of Department Chairperson.

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**Open to Graduate Students Only**

#### 603 Studies in Computer Science 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.

#### 643 Sorting, Searching, and File Organization 3 hrs.

Internal sorting (insertion sort, quick sort, 2-way merge sort, heap sort, sorting on several keys), external sorting (K-way merging, buffer handling for parallel operations, balanced merge sort, polyphase merge), symbol tables, file organization (queries, index-organization, inverted files, storage management). Prerequisites: CS 509.

#### 665 Advanced Operating Systems 3 hrs.

Advanced and current topics in operating systems research will be discussed. Analysis of competitive techniques will be undertaken to present a better understanding of tradeoffs in design decisions. Modeling and performance evaluation will also be presented. A detailed and theoretical view of the basic operating system concepts will be emphasized. Programming assignments involving simulation and performance evaluation will be required. Prerequisite: CS 554.

#### 680 Mathematical Theory of Formal Languages 3 hrs.

Definition of grammars and languages, recursive and recursively enumerable sets, decidability and undecidability, the Chomsky hierarchy of languages and their relation to models of automata. Prerequisite: CS 506.

#### 681 Compiling Theory and Practice 3 hrs.

A study of theoretical and applied strategies for designing compilers and other types of language translation systems. Students will be assigned a programming project on compiling. Prerequisite: CS 680.

#### 682 Introduction to Artificial Intelligence 3 hrs.

Game-playing programs; theorem-proving programs; general problem-solving programs; pattern-recognizing programs; question-answering programs. Prerequisite: CS 506.

#### 691 Seminar in Computer Science 1-3 hrs.

#### 712 Professional Field Experience 1-12 hrs.
and accelerators. Prerequisites: ECON 201 and 202, MATH 122, or consent of instructor.

505 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, special emphasis will be placed on the contributions of significant 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 international 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. Prerequisites: ECON 201 and 202.

509 Econometrics 3 hrs.
An introductory course in analytical and quantitative methods in economics. Applied economic problems like linear programming and 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, including the negotiation of collective agreements, the practical aspects, and the economic implications. Prerequisites: ECON 201 and 202 or consent of instructor.

515 Economics of Human Resources 3 hrs.
The course will examine the development and utilization in the United States, including such topics as labor force components, contributors to productivity such as education, training, health and mobility, and issues of manpower policy. Prerequisites: ECON 201 and 202.

516 Collective Bargaining in Public Employment 3 hrs.
This course examines collective bargaining developments in local, state, and federal governments, including bargaining units, negotiations, grievance procedures, strikes, and dispute settlements. Prerequisites: ECON 201 and 202 or consent of instructor.

517 Economics of Health and Human Service 3 hrs.
Economic problems of health and human services will be considered. Alternative policy solutions are viewed from the economist's point of view. Not open to Economics graduate students.

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 to 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 in the size of urban areas, 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 anthropological 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 220 or 240, ECON 201 and 202, or consent of instructor.

542 Business and Government 4 hrs.
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 economic 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.

545 The Economics of Location 3 hrs.
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.

The course is designed to study the pure theory of international trade and trade policy. Prerequisite: ECON 480 or consent of instructor.

585 The Economics of Sub-Saharan Africa 3 hrs.
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.

587 Studies In Asian Economics 3 hrs.
The course concentrates on the study of the Japanese, Chinese, and Indian economic systems. These models are then applied as a basis of comparison to the other Asian economies. Prerequisites: ECON 201 and 202.

588 Economic Development 4 hrs.
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.

589 The Economics of Latin America 3 hrs.
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.

591, 592 Guest Economist Seminar 1 hr.
Seminar series on a topic of current interest featuring invited visiting economists. Topics will vary and courses may be repeated. Prerequisites: ECON 201 and 202.

598 Readings in Economics 1-3 hrs.
An independent program of study for qualified students to be arranged in consultation with the instructor. Prerequisite: Consent of Department Chairperson.

Open to Graduate Students Only

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; role of savings in consumer demand
theory (utility maximization over time). Prerequisites: ECON 303 and 504.

609 Seminar in Economics 1-3 hrs.
Offers the graduate an opportunity to investigate contemporary problems in economic theory and analysis. Prerequisite: Four 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 economics 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/her 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 economic conditions. Prerequisites: ECON 201 and 202.

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.

English (ENGL)
C. Goldfarb, Chairperson; Professors Callan, Combs, Galligan, Glanakakis, R. Goldfarb, Holaday, Miller, Nelson, Sadler, Stroupe, Woods; Associate Professors B. Carbon, N. Carlson, Cooley, Cooney, Davidson, Davis, Demetrakopoulos, Douma, Gingerich, Johnston, H. Scott, Shafer, Small, Stallman, Syndergaard, Weaver; Assistant Professors Bailey, Cutbirth, Dzick, Dybeck, Hains, Hinkel, McTaggart, S. Scott, Seller, Shelnutt.

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 Uppertclass and Graduate Students

510 Special Topics in Literature 4 hrs.
Study of a literary movement, theme, or genre, such as classicism, the Arthurian tradition, the lyric. May be repeated for credit as long as the topics are different.

519 Studies of Non-Western Literatures in Translation 4 hrs.
Studies in Indian and other non-western literatures.

522 Topics in American Literary History 4 hrs.
Study of a movement, genre, period of time.

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 of 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 of 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 emphasis on such writers as Johnson, Boswell, Goldsmith, Gray, Fielding, Sterne, and Smollett.

536 Romantic Literature 4 hrs.
Readings in poetry and criticism with emphasis on Blake, Burns, Wordsworth, Coleridge, Scott, Byron, Shelley, and Keats.

537 Victorian Literature 4 hrs.
Readings emphasizing Carlyle, Mill, Dickens, Thackeray, Tennyson, Browning, and Arnold.

538 Modern Literature 4 hrs.
Readings in major authors of the twentieth century, with some attention to literary and intellectual backgrounds of the international modern movement.

543 Elizabethan and Jacobean Drama 4 hrs.
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 4 hrs.
A study of Milton’s major works, with emphasis on Paradise Lost and the major poetry.

555 Studies in Major Writers 4 hrs.
Study of the works of classic, European, British, or American writers. Limited to one or two authors. May be repeated for credit as long as the authors covered are different.

566 Creative Writing Roundtable 4 hrs.
An advanced course in the writing of poetry, fiction, or drama, with class criticism of each student’s writing. The course may be taken more than once.

572 American Dialects 4 hrs.
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 4 hrs.
An application of the concepts of linguistics to the teaching of
language, literature, composition, and reading in the English curriculum. Prerequisite: ENGL 270, 271, 373, or equivalent.

582 Studies in Children's Literature  4 hrs.
A study in depth of significant themes, movements, and types in children's literature. Prerequisite: ENGL 282 or permission of the Department.

597 Studies in English: Variable Topics  1-3 hrs.
Group study of special topics in literature, film, English language, and writing. Many of these special courses are organized around special events or speakers on campus or in the community, or in response to special needs or interests of students. Some topics are announced in the Schedule of Classes; some are added during the semester. Further information and full listing of topics may be obtained from the English Department, sixth floor Sprau Tower.

598 Readings in English  2-4 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 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.

621 Studies in British Literature  3 hrs.
The advanced study of selected aspects of British literature.

622 Studies in American Literature  3 hrs.
The advanced study of selected aspects of American literature.

640 Poetics  3 hrs.
An analysis of poetry, poetic theory and practice; the aesthetics of poetry.

641 Studies in Modern Poetry  3 hrs.
An intensive study of the writings of several modern poets.

642 Studies in Drama  3 hrs.
Selected areas of drama from classical times to the present.

644 The Novel: Form and Technique  3 hrs.
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  3 hrs.
An intensive study of the works of some important novelists of the twentieth century.

Selected tragedies of Shakespeare. Prerequisite: An undergraduate course in Shakespeare.

653 Studies in Shakespeare: Comedy  3 hrs.
Selected comedies of Shakespeare. Prerequisite: An undergraduate course in Shakespeare.

660 Methods of Research in English  3 hrs.
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  3 hrs.
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  3 hrs.
A study of the major critical treatises. Required of candidates for the M.A. in English.

673 Psycholinguistics in Reading  3 hrs.
An examination of psycholinguistic insights into the nature of the reading process, with emphasis on practical implications and applications for the classroom. No prerequisite.

676 Early English  3 hrs.
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  3 hrs.
A study of theories and methods of teaching literature.

681 Advanced Methods in Teaching Language and Composition  3 hrs.
A study of theories and methods of teaching language and composition.

697 Studies in English: Variable Topics  1-3 hrs.
Group study of special topics in language, literature, and composition. These special courses and workshops may be offered on campus, in the off-campus centers, or as in-service work in schools. Students may repeat this course, providing topics vary. For further information, consult the graduate adviser.

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.

Geography (GEOG)

Stoltman, Chairperson; Professors Elchenlaub, Heller, Horst, Kirchherr, Raup, Vulch; Associate Professors Dickson, Erhart, Micklin; Assistant Professors Hadler, Quadrat.

COURSES IN SYSTEMATIC GEOGRAPHY

Open to Upperclass and Graduate Students

521 Studies in Climatology & Meteorology  3 hrs.
Studies at an advanced level in climatology and meteorology. Topics of current interest to atmospheric scientists are examined in depth. Dynamic-complex, and synoptic methods of climatic description are also examined, and regional climatic phenomena and their relation to atmospheric circulation patterns investigated. Prerequisites: GEOG 225 or consent.

540 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's 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 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.

554 Outdoor Recreation: Resources and Planning  3 hrs.
Examination of extensive, resource-based outdoor recreation (such as
parks, wilderness, wild rivers, hunting and fishing, hiking, etc.) with emphasis upon recreational planning. Topics include supply and demand for outdoor recreation, identification of present and future recreational needs, policy considerations, administration of recreational land uses, and various problems associated with outdoor recreation. Readings, discussion, and student-designed and executed individual studies provide professional orientation.

555 Contemporary Issues in Resources Management 3 hrs.
Examination of selected contemporary natural resource and environmental problems, such as questions of natural resource adequacy, environmental pollution, energy shortages, political and economic problems related to resource management, and individual studies of local environmental problems. Prerequisite: G EOG 350 or consent.

556 Studies in Urban and Regional Planning 3 hrs.
Each of the courses listed under this number focuses on a major aspect of planning, including a review of the objectives of the planning process, legislation pertaining to planning operations, and methods of field and library investigation required for analysis and policy formulation in matters related to planning.

a. Urban Planning and Zoning: A survey of American planning thought and practice; the background of planning and zoning in American municipalities; traditional and contemporary approaches to the comprehensive plan; elements of land use and transportation planning; the legal foundations of zoning; and the organization of the planning agency.

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 of urbanized regions, 2) factors in city growth (or decline), 3) the sizes, function, and geographical distribution of cities, and 4) land use and population patterns in contemporary cities. Activities are designed to provide the student with experience in the use of source materials and methods of analysis utilized in urban geography.

Open to Graduate Students Only

620 Seminar in Physical Geography 2-3 hrs.
A review of current literature and recent developments in several disciplines which form the basis of physical geography. Since each seminar emphasizes different subject areas, such as landforms, soils, and vegetation, this seminar may be repeated. A final research project is required. Prerequisites: One of several advanced courses in physical geography, geology or biology, or consent of instructor.

646 Analysis of Primary Resource Utilization in Developing Nations 2-3 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.

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: G EOG 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 credit for G EOG 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 G EOG 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 G EOG 382.

513 Western and Southern Europe 3 hrs.
Intensive regional study of those 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 G EOG 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 G EOG 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 credit for G EOG 385.

516 Middle East and North Africa 3 hrs.
A study of the diversity of 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 G EOG 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 G EOG 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 credit for G EOG 385.

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 credit for G EOG 390.

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.

609 Studies in Regional Geography 2-3 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.
COURSES IN GEOGRAPHIC METHODOLOGY AND RESEARCH

Open to Upperclass and Graduate Students

557 Environmental Impact Assessment 3 hrs.
Alteration of the natural and human environment for perceived economic and social benefits often has significant adverse consequences. Recognition of this problem is reflected in federal, state, and local laws and regulations requiring environmental impact statements. This course provides an introduction to the analysis and preparation of environmental impact statements. Prerequisites: Senior standing and Geography 350 or permission.

560 Principles of Cartography 4 hrs.
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 the history of cartography, 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 various map products. One one-hour lecture and two two-hour laboratory periods.

566 Field Geography 2-4 hrs.
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.

568 Quantitative Methodology 3 hrs.
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.

580 Advanced Cartography 3 hrs.
The compilation of data and the design of maps and graphs for research papers, and the application of statistical techniques in mapping geographic phenomena are applied to the more advanced cartographic techniques and photo-cartography. Students are assigned special problems to develop their proficiency in the use of cartography as a tool in research. One hour of lecture in conjunction with independent student projects. Prerequisite: GEOG 560 or consent.

582 Remote Sensing of the Environment 3 hrs.
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 resources, rural and urban land use, as well as topics adapted to the interest and anticipated future work of the student. Prerequisite: GEOG 560 or consent.

598 Readings in Geography 1-3 hrs.
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 4 hrs.
Introduction to problem formulation and research design in the light of modern geographic thought and current practices. Considerable attention is also paid to the sources of geographic information and to the written presentation of research materials. Graduate students in geography are urged to complete this course as soon as possible. Prerequisite: Consent of departmental adviser.

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 1-3 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)

Schmalts, Chairperson; Professors Kuenzi, Straw; Associate Professors Chase, Grace, Passero; Assistant Professors Cronk, Harrison, Sides.

Open to Upperclass 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 of instructor.

505 Regional Geomorphology of the United States 3 hrs.
A study of geomorphic processes and landforms by consideration of geologic regions of the United States. Prerequisite: GEOG 131 or consent of instructor.

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: GEOG 335 or consent of instructor.

530 Plate Tectonics and Earth Structure 3 hrs.
Major tectonic features and internal structure of the earth in relation to plate tectonics; critical examination of the tenets of plate tectonics. Prerequisites: GEOG 131, 301, or 335.

532 Surficial Processes and Groundwater Geology 3 hrs.
Detailed consideration of fluvial, eolian and glacial processes, and the geologic aspects of surface water and groundwater hydrology. Qualitative and quantitative aspects of ground water movement, location, evaluation, and the influences of man on the hydrologic system.

533 Invertebrate Paleontology 4 hrs.
Morphology, classification, evolution, and stratigraphic distribution of major invertebrate fossil groups. Three lectures and a three-hour laboratory. Prerequisite: GEOG 131 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: GEOG 131 or consent.

535 Terrigenous Depositional Systems 4 hrs.
Processes, characteristics, and relationships among fluvial, deltaic, strand plain, lagoon, shelf, and slope terrigenous depositional systems. Laboratory includes textural analysis; sedimentary structures; paleocurrent analysis; electric log, subsurface maps, and application of statistical and computer methods to the solution of sedimentologic problems; and basin analysis. Course includes five days of field trips. Three lectures and one three-hour laboratory per week. Prerequisite: GEOG 131.

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: GEOG 131 and consent of instructor.

543 Palaeoecology 3 hrs.
Study will include the ecology, life, habits, and environmental interactions of ancient organisms. Prerequisites: GEOG 533 or BIOL 541.

544 Environmental Geology 3 hrs.
Geology related to human affairs and land use planning. Includes engineering properties of earth materials, waste disposal systems, slope stability, floods, erosion and sedimentation, land subsidence, volcanic hazards, earthquakes, and urban geology. Field trips required.

545 Carbonate and Evaporite Depositional Environments 3 hrs.
Processes, characteristics, and relationships of modern and ancient and basinal carbonate and evaporite facies. Course includes an 11-day
field trip (Spring Vacation) to investigate Holocene, Pleistocene, and Tertiary carbonate environments and facies in Florida; and a 3-day trip to northern Indiana and Ohio to examine Silurian Platform carbonates. Student projects include logging, description, and interpretation of core and slabs at the mesoscopic level. Two lectures and one 3-hour laboratory per week. Prerequisites: GEOL 533, 535, and consent.

560 Exploration Geophysics
Introduction to geophysical exploration methods including seismic reflection and refraction, gravity, electric, and electro magnetics. Prerequisites: PHYS 111, MATH 106, 123, GEOL 130.

Open to Graduate Students Only

610 Geochemistry 3 hrs.
An introduction to the basic principles and theories of geochemistry. Prerequisites: GEOL 440 or permission.

611 Mineral Analysis
X-Ray diffraction and fluorescence techniques applied to mineralogical and petrological problems. Prerequisites: GEOL 335 or permission.

612 Hydrogeology
The study of surface and ground water with special emphasis on its chemistry, movement, and relation to the geologic environment.

620 Marine Geology
A course in oceanography with emphasis on marine geology and the relationships of physical, chemical, and biological principles to marine sediments and oceanographic processes. Prerequisite: GEOL 300 and consent.

630 Structural Analysis
The theory of methods and methods involved in the geometric, kinematic, and dynamic analysis of deformed rock bodies. All scales of observation are considered from large map areas to hand specimens. Prerequisite: GEOL 430.

631 Geology for Teachers 2-4 hrs.
A study of the more common rocks, minerals, and fossils, 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).

640 Igneous and Metamorphic Petrology 4 hrs.
Advanced discussion of origins and positions of igneous and metamorphic rocks in light of recent experimental evidence and concepts of global tectonics. Prerequisites: GEOL 440 or equivalent.

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.

655 Sedimentary Petrology 4 hrs.
Thin section and hand-specimen study of sandstones, mudrocks, carbonate rocks, and chemical sediments, with emphasis on paleogeographic, tectonic, environmental, and paragenetic interpretation. Prerequisites: GEOL 335, 535, or consent.

660 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.

710 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

History (HIST)

Brebach, Chairperson: Professors Beech, Brown, Brunhumer, Castel, Cordier, Elsasser, Gregory, Hamner, Maier, Mowen, Nahm, Nodel, Schmitt, Sommerfeldt; Associate Professors Burke, Davis, Hahn, Hawks, Pattison; Assistant Professor Hannah.

I. COURSES DEALING WITH A RESTRICTED CHRONOLOGICAL PERIOD OR SPECIAL PHASE OF HISTORY

501 Studies in European History 3 hrs.
The topics will be announced in the Schedule of Classes. 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 will be chosen from those areas of European history which are not adequately covered by regularly scheduled courses.

502 Studies in Non-Western History 3 hrs.
The topics will be announced in the Schedule of Classes. 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 will be chosen from those areas of African, Latin American, and Asian History which are not adequately covered by regularly scheduled courses.

Open to Upperclass and Graduate Students

509 Myth and Reality in the American Past 3 hrs.
Americans have often portrayed their past in light of their ideals rather than historical realities. This course will explore the ideas and fancies of ordinary people, as well as of writers, politicians, theologians, and scholars as they defined the American Dream.

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, racial attitudes, etc., as each has been used to explain recent events. The writings of men like Martin Delany, W. E. B. Du Bois, Marcus Garvey, and Malcolm X challenge widely-held beliefs about the past and provide fresh perspectives on contemporary America.

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.

520 Colonial America 3 hrs.
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 3 hrs.
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; 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 3 hrs.
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 3 hrs.
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 3 hrs.

Between 1861 and 1865 over 600,000 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 3 hrs.

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 3 hrs.

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 her 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 is 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.

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 parliamentary 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 each member 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.

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 national and international events during the leadership of Lenin, Stalin, Khrushchev, and Brezhnev-Kosygin is studied.

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 reign 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 30 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 theory, 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) the 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, 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 truces of the sciences, visionary social schemes, and a feverish artistic activity.

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, 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 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>571</td>
<td>Mexico: The Building of a Nation</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>583</td>
<td>Modern Japan</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>585</td>
<td>Southeast Asia in the Twentieth Century</td>
<td>3 hrs.</td>
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E. **THE FAR EAST**

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<th>Course Code</th>
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<th>Credits</th>
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<tr>
<td>581</td>
<td>Modern China</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>582</td>
<td>Modern Korea</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>584</td>
<td>Modern Korea</td>
<td>3 hrs.</td>
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<tr>
<td>585</td>
<td>Southeast Asia in the Twentieth Century</td>
<td>3 hrs.</td>
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F. **AFRICA**

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<tr>
<td>587</td>
<td>Ancient and Medieval Africa</td>
<td>3 hrs.</td>
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<td>588</td>
<td>Modern Africa</td>
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II. **GENERAL COURSES**

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>593</td>
<td>Philosophy of History</td>
<td>2 hrs.</td>
</tr>
<tr>
<td>594</td>
<td>War in the Modern World</td>
<td>3 hrs.</td>
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III. **SPECIAL COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>500</td>
<td>Problems in History</td>
<td>2-3 hrs.</td>
</tr>
</tbody>
</table>

IV. **COUPLES OPEN ONLY TO GRADUATE STUDENTS**

A. **STUDIES IN HISTORY**

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.

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.

C. **PROFESSIONAL COURSES**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>690</td>
<td>Historical Method</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>691</td>
<td>Studies in Historical Literature</td>
<td>3 hrs.</td>
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<tr>
<td>692</td>
<td>Historical Essay</td>
<td>4 hrs.</td>
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D. Please refer to The Graduate College section for course descriptions.

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<tr>
<th>Course Code</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>
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<tr>
<td>720</td>
<td>Specialist Project</td>
<td>2-6 hrs.</td>
</tr>
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</table>
Languages, Modern and Classical (LANG)

Cole, Chairperson; Professors Ebling, Osmun; Associate Professors Alvarez, Cardenas, Giedeman, Griffin, Jones, Kissel; Assistant Professors Benson, Felkel, Gardiner, Krawutschke, Miller, Orr, Reish, Teichert.

LANGUAGE TEACHING COURSES

Open to Upperclass 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. This course will acquaint prospective language teachers with various approaches and strategies involved in modern language teaching. Specifically, in a performance oriented program, students will learn theory and practice related to teaching the listening, speaking, reading, and writing skills, as well as the culture component. Preferably, students should complete this course before beginning directed teaching.

This course will be offered regularly.

The comparable methods course for Latin 557, Teaching of Latin, is described under Classical Studies below.

*May not be counted in the minor.

Open to Graduate Students Only

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 courses.

Arabic
Brazilian Portuguese
Chinese (Mandarin)
Hebrew
Hindi-Urdu
Japanese
Korean
Latvian
Polish
Sanskrit
Serbo-Croatian
Swahili

FRENCH (FREN)

Open to Upperclass and Graduate Students

FREN 544 Seminar in France 4 hrs.

A summer study of French language, literature, and culture concentrated at Grenoble and Paris. The course consists of formal study at the University of Grenoble with regularly scheduled lectures and discussions in the French language. The session at Grenoble is supplemented by an organized tour of Paris with full explanations by an instructor for all points visited. Each student submits a term paper investigating one phase of his/her studies of particular interest to him/her. Graduate or undergraduate credit. Prerequisite: FREN 200 or equivalent or permission of instructor.

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: FREN 316 and 317 or equivalent.

FREN 552 Advanced French Conversation 3 hrs.

Intensive practice with spoken French. Prerequisite: FREN 316 and 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: FREN 316, 317, 328, and 329 or permission of instructor. Representative topics which may be treated in this area include:

- Medieval Literature—Outstanding works from various genres of the medieval period, such as chansons de geste, romans courtois, didactic works, farces, and poetry.
- Renaissance Literature—Outstanding works from the period, to include Montaigne, Rabelais, and the Pléiade.
- Seventeenth Century Literature—Literary trends of the seventeenth century, to include Corneille, Molière, Racine, Pascal, and La Rochefoucauld.
- Eighteenth Century Literature—Literature and philosophies of the French Enlightenment, to include major works by Voltaire, Rousseau, Diderot, and Montesquieu.
- Nineteenth Century Literature—Studies in romanticism.
- Nineteenth Century Literature—Studies in realism and naturalism.
- Twentieth Century Literature—Studies in the contemporary novel.
- Twentieth Century Literature—Studies in the modern French theatre.

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 judgment.

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 Upperclass and Graduate Students

GER 528 Survey of German Literature 3 hrs.

A comprehensive study of German literature from its beginning through Romanticism. Prerequisite: GER 316, 317, and 325 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, and 325 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. Prerequisite: 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 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. Prerequisites: German 316, 317, and 325 or equivalent. Representative topics which may be treated in this area include:
- The Novel—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 Upperclass and Graduate Students

**LAT 550 Independent Study in Latin** 1-3 hrs.
Directed individual study of a specific topic or genre in a Latin literary or linguistic area (e.g., biography, bucolic poetry, comedy, history, or satire). Departmental approval required for admission.

**LAT 577 Teaching of Latin** 3 hrs.
For prospective teachers of Latin in the elementary or secondary school. Principles, problems, and current practices. Required for Latin teaching 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 324 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 661 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** 3 hrs.
Topic to be selected from a Latin linguistic or literary area.

### RUSSIAN (RUSS)

### Open to Upperclass and Graduate Students

**RUSS 550 Independent Study in Russian** 1-3 hrs.
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** 3 hrs.
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** 3 hrs.
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:
- Classic Russian Short Stories: Emphasis on the works of Turgenev, Гобоl, Tolstoy, and Leskov.
- Modern Russian Poetry: Emphasis on Mayakovski, Akhmatova, Esenin, Yevtushenko, and Voznesenski.

### SPANISH (SPAN)

### Open to Upperclass and Graduate Students

**SPAN 526 Survey of Spanish Literature to the 18th Century** 3 hrs.
A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 316, 317, and 325.

**SPAN 527 Survey of Spanish Literature from the 18th Century to the Present** 3 hrs.
A survey of Spanish literature from the eighteenth century to the present. Prerequisites: SPAN 316, 317, and 325.

**SPAN 528 Survey of Spanish American Literature to Modernismo** 3 hrs.
A survey of Spanish American literature from its origin to the era of *Modernismo* (late 19th century). Prerequisites: SPAN 316, 317, and 325.

**SPAN 529 Survey of Spanish American Literature from Modernismo to the Present** 3 hrs.
A survey of Spanish American literature from late 19th century to the present. Prerequisites: SPAN 316, 317, and 325.

**SPAN 550 Independent Study in Spanish** 1-3 hrs.
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** 3 hrs.
An advanced study of the intricacies and problems of Spanish grammar, syntax, and style with attention to improving written expression.
in Spanish at an advanced level. Prerequisites: Spanish 316, 317, and one additional 300-level course; at least three hours of 526, 527, 528, or 529 are recommended.

**SPAN 553 Advanced Spanish Conversation** 3 hrs.
Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression. Prerequisites: SPAN 316, 317, and one additional 300-level course. At least three hours of 526, 527, 528, or 529 are recommended.

**SPAN 560 Studies in Spanish 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: Three hours of SPAN 526, 527, 528, or departmental permission. 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 Calderon de la Barca.
- Nineteenth Century—The Romantic Movement.
- Nineteenth Century Novel—Department of the regional novel from Fernan Caballero through Blasco Ibanez.
- Generation of '88—Thought and works of typical representatives such as Unamuno, Azorin, Baroja, and A. Machado.
- 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 new Spanish-American 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.

**Linguistics (LING)**

Palmatier, Chairperson; Associate Professors Dwarikesh, Hendriksen.

**GENERAL LINGUISTICS COURSES**

Open to Upperclass and Graduate Students

**500 Introduction to Linguistics** 4 hrs.
An introduction to modern linguistic theory and to the application of that theory to linguistically-related disciplines.

**511 Methods of Teaching English as a Second Language or Dialect** 4 hrs.
Study of the application of linguistics and other disciplines to the teaching of Standard American English to speakers of other languages and of non-standard American English dialects, with emphasis on current methods and materials for instruction and testing. Course work will include tutorial experience.

**515 Methods of Teaching Critical Languages** 2 hrs.
Study of the application of linguistics to the teaching of one or more "critical" languages (e.g., Russian, Hebrew, Japanese, Arabic, Korean, etc.). Emphasis will be on modern and traditional methods and materials for instruction and testing. Course work will include tutorial experience. May be repeated for credit for a different language. Prerequisite: LING 502 or equivalent.

**530 Aspects of Bilingualism** 4 hrs.
An examination of the psychological, sociological, historical, and linguistic aspects of bilingualism, including translation and interpretation. Special attention will be paid to the history and status of bilingualism in the United States, including the current efforts to provide bilingual education in the schools.

**540 Generative Grammar** 4 hrs.
An examination of the theories of Transformational Grammar and Generative Semantics, and a study of their origins, development, modifications, and applications.

**551 Psycholinguistics** 4 hrs.
A study of linguistic systems as they connect language and thought—and relate competence to performance—in the acquisition, production, and perception of language.

**552 Sociolinguistics** 4 hrs.
A systematic study of the linguistic correlates of social behavior and the influence of society on the nature of language.

**571 Languages of Asia** 4 hrs.
A survey of the languages of Asia—their historical relationship, geographical distribution, and systems of writing—and an intensive examination of the most relevant linguistic problems that the people of Asia are confronted with.

**581 Introduction to Research in Linguistics** 4 hrs.
Introduction to the principles and practices of linguistic research. The course will cover techniques of conducting "pure" and "applied" research, of retrieving and utilizing information from the prior research of others, and of preparing research reports, abstracts, and bibliographies.

**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 chairperson.

**CRITICAL LANGUAGES COURSES**

A "critical" language is a foreign language which is not described in the Undergraduate Catalog as a regular offering of the Department of Modern and Classical Languages:

<table>
<thead>
<tr>
<th>Arabic</th>
<th>Korean</th>
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<tbody>
<tr>
<td>Brazilian Portuguese</td>
<td>Latvian</td>
</tr>
<tr>
<td>Chinese (Mandarin)</td>
<td>Persian</td>
</tr>
<tr>
<td>Hebrew</td>
<td>Polish</td>
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<tr>
<td>Hindi-Urdu</td>
<td>Sanskrit</td>
</tr>
<tr>
<td>Japanese</td>
<td>Serbo-Croatian</td>
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</tbody>
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Open to Upperclass and Graduate Students

**501 Intermediate Critical Languages** 4 hrs.
Continuation of LING 302, with greater attention to achieving self-reliance in conversation and to increasing reading and writing skills with the help of a dictionary. Prerequisite: LING 302 or equivalent.

**502 Intermediate Critical Languages** 4 hrs.
Continuation of 501. Prerequisite: LING 501 or equivalent.

**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 502 or equivalent.
509 Writing Critical Languages 4 hrs.
Intensive practice in writing a critical language to improve the student's ability to express himself or herself effectively and to develop an individual style of composition. Prerequisite: LING 502 or equivalent.

Mathematics (MATH)

506 Scientific Programming (Jointly listed with Computer Science) 3 hrs.
Designed to give preparation in the organization and general use of digital computers for scientific and engineering computations. The FORTRAN language and a second language will be used. Problems such as series evaluation, multiplication and inversion of matrices, numerical integration and pointwise differentiation, as well as general numerical approximation will be prepared for the computer. Prerequisites: MATH 123, and 230 or 272.

507 Numerical Analysis 3 hrs.

510 Multivariate Mathematical Methods 3 hrs.
Topics from multivariate calculus, including jacobians and optimization techniques, and from linear algebra, including eigenvalues, idempotent matrices and generalized inverses. Emphasis on applications and examples from statistics. Prerequisites: MATH 230 and 272.

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.

540 Advanced Geometry 3 hrs.
Topics to be selected from projective geometry, algebraic geometry, differential geometry, or noneuclidean 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.

551 Participation in Teaching Secondary Mathematics 2 hrs.
School experiences and related seminar designed to provide the prospective teacher of secondary mathematics with tutorial, small group, and a limited amount of total class teaching experience in the junior or senior high school mathematics classroom. Enrollment is restricted to students concurrently enrolled in MATH 550. Graded on a Credit/No Credit basis. Prerequisite: Approval of instructor.

552 Teaching of Elementary Mathematics 3 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.

553 Participation in Elementary Mathematics Teaching 2 hrs.
Students will work cooperatively with an elementary school teacher in an elementary classroom in various aspects of helping children learn mathematics. The course will provide the prospective elementary teacher with an opportunity to work with small groups of young children and to observe them in mathematics learning. The student will be required to maintain a journal and meet weekly with a staff member supervising the course. Graded on a Credit/No Credit basis. Prerequisite: MATH 552.

560 Applied Probability 3 hrs.
A first course in probability for upper division and graduate students interested in applications. Topics will include: probability spaces, expectation, moment generating functions, central limit theorem, special discrete and continuous distributions. Applications will include reliability and production problems, and Markov chain methods. Not recommended for students who have taken MATH 362 or 660. Prerequisite: MATH 272.

562 Statistical Analysis I 4 hrs.
The first course in the sequence MATH 562, 662 of applied statistics which combines both theory and applications. Topics include: elementary theory of estimation and hypothesis testing; the use of the normal, binomial, chi-square, F- and t distributions in statistics problems; means and variances; simple linear regression; correlation; one-and two-way analysis of variance, fixed effects models. Prerequisite: MATH 560 or 362.

567 Applied Statistics 4 hrs.
A continuation course in statistical methods. Emphasis on regression, ANOVA and multiple comparisons, orthogonal comparisons, multiple linear regression and simple experimental design. Extensive use of available stored statistical computer programs to analyze data. Not for mathematics graduate students. Prerequisite: MATH 260 or 360 or 363 or permission of instructor.

A continuation of MATH 567. Students will study statistical methodology using case study and computer techniques. Prerequisite: MATH 567 or permission of instructor.

570 Advanced Calculus 3 hrs.
Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Prerequisite: MATH 272 and 330.

571 Foundations of Analysis 3 hrs.
Fundamental concepts of real analysis, functions of one variable, topology of E , Riemann-Stieltjes integral. Prerequisite: Approval of adviser.

574 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, 272, 274, or 374, 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 272.

580 Number Theory 3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: MATH 330.

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 chairperson of department.
Open to Graduate Students Only

602 Fourier Series and Boundary Value Problems 3 hrs.
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 3 hrs.
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 Optimization Methods 3 hrs.
Optimization methods including nonlinear programming, calculus of variations, and integer programming will be covered. Network flow problems and dynamic programming may also be covered. Applications to problems in business and industry will be included. Prerequisites: MATH 123 and 408 or 608 or IEGM 610.

606 Linear Programming 3 hrs.
Linear inequalities; convex geometry; optimization in linear systems; zero-sum games; applications. Prerequisite: An introductory course in linear algebra.

609 Studies in Applied Math 3 hrs.
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.

The courses 610 through 619 are primarily for teachers and ordinarily will not apply towards the Master of Arts degree in Mathematics.

610 Concepts of Mathematics 4 hrs.
The 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 the 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.

620 General Topology II 3 hrs.
Topics include: continuous functions, uniform spaces, function spaces, paracompactness. Prerequisite: MATH 520.

621 Algebraic Topology 3 hrs.
Topics will include: simplicial complexes, homology and cohomology theories, including singular homology theory. Prerequisite: MATH 520.

623 Point Set Topology 3 hrs.
Complete metric spaces; local connectedness; Hahn-Mazurkiewicz Theorem; 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 spectral 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 Problems. Prerequisite: Approval of instructor.

641 Graph Theory II 3 hrs.
Kuratowski's theorem; genus and the generalized Euler formula; connectivity; hamiltonian graphs; extremal regular subgraphs; graphs and groups; Cayley color graphs. Prerequisite: MATH 640.

642 Graph Theory III 3 hrs.
Graph valued functions; chromatic numbers and the Four Color Problem; Ramsey Theory and extremal problems. Prerequisite: MATH 641.

645 Studies in Combinatorics 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.

647 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.

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.

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.

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: Consent of adviser.
Probability spaces; expectation; generating functions; change of variable techniques; special discrete and continuous distributions; sampling and sampling distributions; asymptotic theory; point estimation; hypothesis testing; likelihood ratio tests; maximum likelihood estimation; sufficient statistics. Prerequisites: MATH 530 and 571, or 510.

A treatment of multivariate statistical problems and techniques. Topics include: multivariate normal distribution; quadratic forms; multiple and partial correlation; sample correlation coefficients; Hotelling's T^2-statistic; Wishart distribution; applications to tests of the mean vector and covariance matrix; principal components; factor analysis; cluster analysis; discriminant analysis. Prerequisite: MATH 510 and 660, or consent of instructor.

A continuation of Math 562. Topics include: a brief review of matrix algebra, multivariate normal distribution; distribution of quadratic forms; linear models; multiple, curvilinear, nonlinear and stepwise regression; multiple and partial correlation; analysis of variance-fixed, random and mixed models. Prerequisites: MATH 562 and consent of instructor.

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; sub-sampling; application of statistical techniques to applied problem. Prerequisite: An introductory course in statistics.

An applied course in the design and analysis of experiments. Topics include: general considerations in the design of an experiment; multiple comparison procedures; factorial treatment designs; confounding; standard designs such as Latin squares, splitplot experiments, and balanced incomplete blocks; messy data; measures of covariance; response surface methodology; and randomization models. Prerequisite: Consent of instructor.

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. Prerequisite: Permission of instructor.

Topics will include: inferences for proportions, contingency tables, goodness-of-fit problems, estimation and hypothesis testing based on ranking methods, rank correlation, efficiency. Prerequisite: An introductory statistics course.

This course is a treatment of random sequences and Markov processes. Discrete and continuous Markov processes; transition and rate matrices; Chapman-Kolmogorov systems; transient and limiting behavior; examples and illustrations: random walks; birth-and-death processes, etc.; stationary processes. Prerequisite: MATH 571, 510 or 530, and one probability course.

The subject matter for this course is variable. Advanced work is considered and organized around topics not usually considered in the other courses.

The basic theory of measure and integration, including such topics as Lebesgue measure, abstract measures, measurable functions, product measures, Lp spaces, Radon-Nikodym theorem. Prerequisite: MATH 571.

Metric spaces; category; compactness; Banach spaces; Hahn-Banach theorem; completely continuous operators; Hilbert spaces; self-adjoint operators; elementary spectral theory. Prerequisite: MATH 670.

A continuation of MATH 671 to include such topics as linear topological spaces, locally convex spaces and Banach algebras. Prerequisite: MATH 671.

Uniform convergence of sequences and series of functions; Fourier series; functions of several variables; Lebesgue measure; measurable functions; Lebesgue integration on the real line. Prerequisite: MATH 571.

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).

Topics include: Cauchy Theory, series expansion, power series, types of singularities, calculus of residues. A continuation of MATH 676. Prerequisite: MATH 676.

Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

Theorems of Hermite on quadratic forms; Minkowski's Fundamental Theorems and consequences; lattices, critical determinants, successive minima, theorems of Mahler and Blichfeldt, packing and covering. Prerequisite: MATH 230 or permission of instructor.

Convolutions of arithmetic functions, unique factorization in rings of functions under various convolutions, invertibility of functions, Dirichlet and quotient functions; average and maximal orders of arithmetical functions; the Dirichlet divisor problem and related problems. Prerequisite: MATH 580 or permission of instructor.

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.

Elementary methods in the analytic theory of numbers; the theory of distribution 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 numbers: Dirichlet series. Prerequisite: MATH 571 or permission of instructor.

Advanced work organized around topics related to the field of study indicated in the title. Students may take this course more than once.

1-3 hrs.
1-3 hrs.
1-3 hrs.
1-4 hrs.
1-3 hrs.
1-3 hrs.
1-6 hrs.
2-10 hrs.
2-12 hrs.
2-6 hrs.
15 hrs.
2-10 hrs.

The Medieval Institute of Western Michigan University offers an interdisciplinary program leading to the Master of Arts degree in Medieval Studies.

Otto Gründler, Director
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, as well as a monograph series, Early Drama, Art, and Music.

The Teaching Faculty of the Medieval Institute are the following (Members of the Institute are indicated by an asterisk):

- George T. Beech (History)*
- Regina F. Berneis (Librarianship)
- Guentram G. Bischoff (Religion)*
- Joan A. Boucher (Music)
- Ernst A. Breisach (History)*
- Norman E. Carlson (English)
- Nancy Cubirth (English)*
- Audrey Davidson (General Studies)*
- Clifford Davidson (English)*
- Ronald W. Davis (History)
- Elizabeth H. Dull (Art)
- Benjamin Ehling (French)
- David Ede (Religion)*
- E. Rozanne Elder (History)*
- Robert W. Felkei (Spanish)*
- Stephanie Demetrakopoulos (English)*
- Daniel Fleischhacker (Theatre)
- Jeffrey B. Gardiner (German)
- C.J. Gianakaris (English)*
- Elizabeth Giedeman (Latin)*
- Otto Grundler (Music)
- Rudolf L. Siebert (Religion)
- Thomas E. Small (English)
- Emanuel Nodel (History)
- Maisie K. Pearson (English)
- David A. Sheldon (Honors College)
- Roger L. Cole (German)
- William W. Combs (English)
- Larry E. Syndergaard (English)*

The Supporting Faculty of the Medieval Institute are the following (Members of the Institute are indicated by an asterisk):

- Beatrice Beech (Library)*
- Donald P. Bullock (Music)
- Samuel I. Clark (Honors College)
- Roger L. Cole (German)
- William W. Combs (English)
- D.P.S. Dwarkesh (Linguistics)
- Robert R. Fink (Music)
- Jack J. Frey (Music)
- Marvellen Hains (English)
- Louis Kiraldi (Library)
- Peter W. Krawutschke (German)*
- Paul L. Maier (History)
- Edwin E. Meader (Geography)
- Ralph N. Miller (English)
- Paul T. Mountjoy (Psychology)
- Emanuel Nodel (History)
- Maisie K. Pearson (English)
- David A. Sheldon (Music)
- Rudolf J. Siebert (Religion)
- Thomas E. Small (English)
- William C. VanDeventer (Biology)
- Joseph T. Work (Music).

COURSE OFFERINGS

MEDIEVAL INSTITUTE

Open to Undergraduate and Graduate Students

500 Interdisciplinary Studies in Medieval Culture 3 hrs.
An interdisciplinary course organized around selected topics in medieval and renaissance studies. The focus may be in a specific period (The Twelfth Century), a religious movement (Monasticism), a political structure (Venice—A Renaissance city-state), or the social fabric (Medieval Man: Image and Reality). In each case faculty from several departments will approach the semester’s topic from the perspective and with the methodological tools of their respective discipline, such as art, history, literature, music, philosophy, political science, and religion. The overall aim of the course is to demonstrate to students why one needs to acquire a variety of disciplines to understand a single complex problem, and how to put traditional building blocks together in new ways. The course may be repeated for credit with a different topic.

Open to Graduate Students Only

600 Advanced Seminar in Medieval Studies 2-4 hrs.
A research seminar for advanced graduate students with the focus on research and the preparation of papers in highly specialized areas of medieval studies. The specific topic of each seminar will be announced in the Schedule of Classes. May be repeated for credit with a different topic.

610 Introduction to Medieval Studies 3 hrs.
An interdisciplinary course required of all graduate students in the Medieval Institute and designed to provide a broad introduction to medieval culture. In a series of lectures and discussions a limited number of texts will be examined historically and stylistically from the perspective of various disciplines in an effort to describe both the “what” and the “how” of medieval studies.

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.

Art

- 520 Independent Study in Art History 2-3 hrs.
- 583 History of Medieval Art 3 hrs.
- 585 History of Renaissance Art 3 hrs.
- 620 Independent Study in Art History 2-3 hrs.

College of Arts and Sciences

- 504 Foreign Studies Seminar 1-6 hrs.
- 505 Foreign Studies Seminar 1-6 hrs.

English

- 529 Medieval English Literature 4 hrs.
- 530 Medieval Continental Literature in English Translation 4 hrs.
- 531 Chaucer 4 hrs.
- 532 Sixteenth Century Literature 4 hrs.
- 543 Elizabethan and Jacobean Drama 4 hrs.
- 554 Milton 4 hrs.
- 555 Dante 4 hrs.
- 598 Readings in English 2-4 hrs.
- 642 Studies in Drama 3 hrs.
- 653 Studies in Shakespeare: Comedy 3 hrs.
- 660 Methods of Research in English 3 hrs.
- 661 Seminar in English 3 hrs.
- 676 Early English 3 hrs.

History

- 534 Medieval France 3 hrs.
- 535 Medieval England 3 hrs.
- 552 The Medieval Church 3 hrs.
- 553 Life in the Middle Ages 3 hrs.
- 554 The Renaissance 3 hrs.
- 555 The Reformation 3 hrs.
- 587 Ancient and Medieval Africa 3 hrs.
- 598 Independent Readings in History 2-3 hrs.
- 618 Seminar in European History 3 hrs.
- 652 Studies in Medieval History 3 hrs.
- 646 Seminar in Medieval History 3 hrs.
- 690 Historical Method 3 hrs.
- 692 Studies in Historical Literature 3 hrs.

Languages, Modern and Classical

French

- 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

- 528 Survey of German Literature 3 hrs.
- 550 Independent Study in German 1-3 hrs.
- 559 History of the German Language 3 hrs.
- 620 Seminar 2-4 hrs.
- 640 Introduction to Middle High German 3 hrs.

Latin

- 550 Independent Study in Latin 1-3 hrs.

Spanish

- 526 Survey of Spanish Literature (to 17th Century) 3 hrs.
- 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.
590 Readings in Music 1-4 hrs.
670 Seminar in Musicology 1 hr.
671 Seminar in Musicology 4 hrs.
672 Medieval Music 3 hrs.
673 Renaissance Music 3 hrs.

Philosophy

598 Readings in Philosophy 1-4 hrs.

Political Science

598 Studies in Political Science 1-4 hrs.

Religion

500 Historical Studies in Religion:
- Christian Theology to 1500 4 hrs.
- Renaissance and Reformation Theology 4 hrs.
598 Readings in Religion 1-4 hrs.

Philosophy (PHIL)

Pritchard, Chairperson; Professor A. Falk; Associate Professors Ellin, Sheridan; Assistant Professor Dillworth.

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 chairperson, 3100 Friedmann Hall.

Open to Upperclass 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 chairperson of the department's individualized courses must be secured in advance of registration.

Physics (PHYS)

Oppliger, Chairperson; Professors Bernstein, Carley, Derby, Hardie, Nichols, Shamu, Soga, Zietlow; Associate Professors Dorson, Kaul; Assistant Professor Rao.

Open to Upperclass 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. Prerequisite: PHYS 211, MATH 274. 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. The Lagrangian formulation of mechanics is introduced. Prerequisite: PHYS 212 or consent of instructor, and MATH 274.

541 Electricity and Magnetism II 3 hrs.
This course is a continuation of 540 and is 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 spectroscopic 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, the helium atom, atomic shell structure, and atomic spectroscopy. 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 x-rays, collision theory, general properties of nuclei, the nuclear two-body problem, nuclear reactions, and nuclear models. Prerequisite: PHYS 560. This course and 563 are offered in alternate years.

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. This course and 561 are offered in alternate years.

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 560, or consent of instructor.

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

610 Research Seminar 1 hr.
This is an optional course for the first-year graduate students and will be offered every winter semester. The course consists of faculty research talks and student talks (one by each student) on papers chosen by the students and approved by the faculty members. Students taking the course are required to attend the weekly research lecture. This course will be graded on a Credit/No Credit basis.

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 Schrödinger-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. This course and 623 are offered in alternate years.

623 Quantum Mechanics II 3 hrs.
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 3 hrs.
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. This course and 630 are offered in alternate years.

630 Classical Mechanics 3 hrs.
Lagrangian'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. This course and 624 are offered in alternate years.
660 Nuclear Physics 3 hrs.
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 3 hrs.
This course deals with the static electromagnetic field and its interaction with matter. The applications of boundary value problems are emphasized. This course and 622 are offered in alternate years.

644 Solid State Physics 3 hrs.
In this course the following topics are treated: superconductivity, the dielectric properties of solids, ferroelectricity, diamagnetism, paramagnetism, ferromagnetism, 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.

Political Science (PSCI)
Olton, Chairperson; Distinguished University Professor Stine; Professors Agor, Clark, Kaufman, Kim, Klein, McAnaw, Mitchell, Phillips, Plano, Ziring; Associate Professors Chandler, Dahlberg, Isaak, Kobrak, Lewis, Milstein, Ritchie, Rogers, Rossi, Thompson, Willis; Assistant Professors S. Hannah, Houghton, Renstrom.

1. AMERICAN POLITICAL SYSTEM

Open to Upperclass 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.

525 The Politics of Criminal Justice 3 hrs.
An examination of the relationship between the political system and the process of criminal justice with particular emphasis on the exercise of political discretion in the creation and application of judicially established guidelines.

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 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 3-4 hrs.
Consideration in 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.

531 Administration in Local and Regional Governments 3 hrs.
The administrative organization, structure, procedures, and forms of local units of government are analyzed.

532 The Bureaucracy 3 hrs.
The analysis of the role of public bureaucracies in the decision process of government.

533 Public Personnel Administration 3 hrs.
This course emphasizes the development of public personnel patronage and merit systems, their structure, staffing, effectiveness, and current problems related to the staffing of public agencies.

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.

535 The Politics of Governmental Budgeting and Finance 3 hrs.
A survey of the political process of governmental budgeting and finance. Budget systems including program planning and budgeting systems are studied. The politics of taxation and other governmental revenues including intergovernmental transfers are studied for their impact on public policy choices.

536 Comparative Public Administration 3 hrs.
This course introduces students to a variety of public administration systems found in the contemporary world and includes a brief evolutionary history of these systems. Various theoretical models of administration and bureaucracy are compared with current practice in Western Europe, North America, the Soviet Union, and in contemporary Asian and African systems.

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. May be repeated.

622 Seminar: The Judiciary 3 hrs.
Study and research of major topics of interest in the judicial process, judicial decision-making, judicial behavior, the judiciary as policy-maker, judicial systems, and public law. Topics will vary from semester to semester and students may repeat the course.

630 Seminar: Public Administration 1-3 hrs.
Study in selected topics in public administration. Subject matter will vary, and the course may be repeated. The number of hours for which the course is offered in any given semester will be listed in the schedule of classes.

631 The Foundations of Public Administration 3 hrs.
This course is designed to introduce and review major developments in the field of public administration, to acquaint the student with the constitutional and legal basis of administration in public agencies, and to review the ethical and legal significance of accountability in the public service.

633 The Political Environment of Public Administration 3 hrs.
This course examines the interaction between the administrative agency and the social, economic, and political forces which constitute its external environment. Emphasizes the sources of bureaucratic power, the nature of administrative and political elites, and the strategies which agencies pursue in seeking to survive and expand their programs. Explores the impact of the political system on administrative decision-making and agency responsiveness.

634 Seminar: Professional Issues in Public Administration 1 hr.
This seminar examines topics of interest to professionals in the field of public administration. May be repeated. Total not to exceed three hours. Graded on a Credit/No Credit basis.

635 Professional Seminar in Agency Administration 3 hrs.
This professional seminar concludes the MPA candidate’s program of...
study and provides an opportunity to focus all previous professional experience and academic preparation on the analysis and solution of a major problem confronting an agency of government. The candidate's report culminating this study should be of educational value to the student, of practical benefit to the agency studied, and of academic quality acceptable to the faculty.

636 Planning and Budgeting in Developing Countries 3 hrs.
This seminar will serve to focus study and research on several issues central to the planning and budgeting process in developing countries. To be explored are such questions as: How does the budgetary process work in developing countries? Why do annual budgets often prove inaccurate as a guide to the actual allocation of resources in developing countries? How can the planning and budgeting processes in developing countries be reformed?

II. FOREIGN AND COMPARATIVE POLITICAL SYSTEMS

Open to Upperclass 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.

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.

548 Asian Communism 3 hrs.
An examination of Chinese 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 typically on a cross-national basis. The topic to be studied will be announced each semester. Each student will conduct independent research. May be repeated.

III. INTERNATIONAL RELATIONS

Open to Upperclass 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 with 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, 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. May be repeated.

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. May be repeated.

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. May be repeated.

IV. POLITICAL THEORY AND METHODOLOGY

Open to Upperclass 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.

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, Michel, 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 for 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 Seminars: Political Thought 3 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

572 Computer Utilization 1 hr.
A non-technical introduction to the computer. Emphasis is placed on the actual use of the computer by the student. The use of readily available data banks and library programs will allow the student to focus on the processing and manipulation of data. Computer programming and statistics are not taught and are not prerequisites.

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 Chairperson 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)

Lyon, Chairperson; Research Professor Ulrich; Professors Asher, Farrk, Gault, Kent, Koronakos, R. Malott, Michael, Mountjoy, Robertson, Schmidt, Snapper; Associate Professors Brethower, Hultena, Nagle; Assistant Professors Alessi, Forqua, Iwata, Long, K. Malott, Poche, Scruggs, Sidney.

Open to Upperclass and Graduate Students

505 Teaching Psychology in the Secondary School 3 hrs.
Class preparation and materials designed for 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 Behavioral Pharmacology and Toxicology 3 hrs.
Topics range from the use of drugs to clarify behavioral principles to the use of behavioral preparations to discern pharmacological principles' effects. Readings include summaries of pharmacological evidences and selected experimental reports concerning both the behavioral techniques and pharmacological problems in basic research. Prerequisite: 12 hours of Psychology, permission of instructor, or enrollment in SPADA program.

513 Research in Animal Behavior 3 hrs.
A review of the research in various areas of animal behavior with emphasis on laboratory research of animal learning processes, research design, data collection, analysis, and interpretation.

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.
This is a general methods course 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 development of objectives, selection and preparation of instructional material, instructional design and classroom management, behavior change, behavioral contracting and program evaluation. Application is stressed. Prerequisite: Permission.

518 Research in Stimulus Control 3 hrs.
An examination of the literature surveying sensory and perceptual processes with an emphasis upon the research methodology and theoretical interpretation of data from studies of stimulus control and discrimination in infra-human organisms. Prerequisite: 12 hours of Psychology or permission of Instructor.

519 Corrective and Remedial Teaching 3 hrs.
An introduction to and survey of various content skills, curriculum approaches, and special teaching techniques used in elementary school reading and mathematics instruction. Designed primarily for prospective school psychologists, focus is on academic skill content, sequencing of skill hierarchies, devising short term educational plans to teach specific skills, and evaluating effectiveness of such plans. Graduate standing in school psychology, special education, and permission of instructor. Prerequisite: PSY 517 prior to or concurrent with this course.

520 Advanced Child Psychology I 3 hrs.
An intensive examination of the research literature in developmental psychology with concentration upon various theoretical interpretations of child behavior.

521 Advanced Child Psychology II 3 hrs.
A continuation of PSY 520—the study of children's behavior at an advanced level.

523 Advanced Abnormal Psychology 3 hrs.
A comparative study of pathological behavior patterns in terms of the theoretical interpretation of the cause of the above behaviors and the recommended treatment techniques. Designed for students in disciplines other than Psychology.

524 Human Sexuality 3 hrs.
Discussion of those human behaviors concerned with sex, sexuality, and reproduction. Consideration is given to the anatomical and psychological properties of sexual functioning in male and female. Emphasis is placed upon the sexual response cycle as described by Masters and Johnson. The course is not intended to provide therapy training.

530 Statistics for Education 3 hrs.
An introduction to basic statistical procedures and concepts. Primarily for students in education.

535 Topics in Psychological Instrumentation: Digital Control, Relay Circuitry, Polygraph 3 hrs.
A survey of problems in response measurement in laboratory experimentation. Lecture and laboratory.

540 Industrial Psychology 3 hrs.
Application of psychological principles to industry and other organizations. An examination of employee selection, job satisfaction, training, evaluation of performance, supervision, and working conditions.

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.

570 Mental Retardation 3 hrs.
A behavior analysis approach to the area of retardation. Topics will include: historical background, assessment training, and legal implications of treatment.
Behavioral systems analysis applied to the design, creation, and management of human services settings. Students do analysis of human service settings in which they are involved or enroll in a concurrent service systems laboratory.

574 Experimental Social Psychology 3 hrs.
Methodology of research with groups, with emphasis upon design and application. Prerequisite: Permission of the instructor.

595 History of Psychology 3 hrs.
The historical and philosophical foundations of contemporary American psychology.

597 Topical Studies In Psychology 1-4 hrs.
Topics may include both basic science and applied aspects of the discipline of psychology under the direction of Instructor. Courses may be repeated for credit, although the total number of credits may be limited by the degree program. Students should consult the program adviser. Courses may include the following:
- Current Issues in Psychology
- Parent Training
- Psychological Aspects of Ecology
- Drug Use and Abuse
- Studies in Industrial Psychology
- Behavior Analysis and Women
- Computer Assisted Instruction

598 Special Projects In Psychology 1-5 hrs.
This course provides the graduate student with the opportunity for independent reading and/or research under the direction of a faculty member. Graduate standing and permission of instructor. May be repeated for credit, although the total number of hours in a degree program may not exceed five hours.

599 Practicum In Psychology 1-4 hrs.
In-depth training in the application of the principles of psychology to a specific and restricted problem area in the discipline. The course practicum application is often identified by the location of the research site or professional service agency published in the Schedule of Classes. May be repeated for credit, although number of credits may be limited by program requirements. Written permission must be obtained on forms available in departmental office.
- Behavior Modification in the Public Schools
- Practicum KVMC
- Practicum Lakeside
- Practicum Mental Retardation
- Practicum in Child Care
- Applied Educational Psychology
- Practicum SMI
- Behavior Contracting

Open to Graduate Students Only

601 An Introduction to Issues in Behavioral Assessment 1 hr.
This course is designed to provide information on the legal and ethical issues in assessment which serve as a framework for the evaluation of testing procedures. An overview of norm-referenced assessment instruments, traditional personality tests, and criterion-references tests, as well as supervised practice in direct observational assessment are included. This course is scheduled for the first five weeks of the semester in which it is offered.

602 An Introduction to the Theoretical Analysis of Behavior 1 hr.
This course considers the extension of basic behavioral concepts and relations to thinking, private stimulus control, self-awareness, perception, and other related topics often considered least amenable to behavioral analysis. It presents a radical behavioral position on these and other theoretical issues, and considers the various objections to this point of view. This course is scheduled for the second five weeks of the semester in which it is offered.

603 An Introduction to Professional Issues in Applied Behavior Analysis 1 hr.
This course considers an examination of recent literature with respect to the areas of legal regulation of behavior modification, professional standards of practice, the conduct of human research, and an analysis of ethical behavior. This course is scheduled for the final five weeks of the semester in which it is offered.

608 Current Research in Applied Behavior Analysis 3 hrs.
A detailed examination of research methodology and strategies, emphasizing the areas of measurement, reliability, and single organism research design. In addition, several areas of current research interest, as exemplified by the Journal of Applied Behavior Analysis, will be studied. Prerequisites: Previous course work in applied behavior analysis and previous or concurrent enrollment in PSY 530, 634, or equivalent.

609 Advanced Seminar in Applied Behavior Analysis Research 3 hrs.
An advanced course emphasizing: a) the continued examination of current research topics, and b) the development of professional research skills (planning and preparation, grantsmanship, dissemination, skill maintenance). Prerequisites: Previous enrollment in PSY 608 and permission of instructor.

610 Experimental Analysis of Behavior 3 hrs.
A survey of the major facts, concepts, principles, and methodology of respondent and operant research. The emphasis will be on lower animal research especially as described in the Journal of the Experimenter Analysis of Behavior.

611 Current Research in Experimental Analysis 3 hrs.
A detailed study of the immediately preceding year’s principal research in the analysis of behavior. The emphasis will be on lower animal research, especially as described in the Journal of the Experimenter Analysis of Behavior.

612 Advanced Physiological Psychology 3 hrs.
A survey of the interrelationships of physiological and behavioral processes. Lecture and laboratory. Prerequisite: Permission of the instructor.

613 Comparative Psychology 3 hrs.
Phylogenetic and ontogenetic comparisons of behavior with relation to structure and function. Lecture and laboratory.

614 Motivation and Emotion 3 hrs.
An introduction to the experimental analysis of psychological and physiological aspects of motives, incentives, and emotions, with an emphasis upon aversive control procedures. Prerequisite: Permission of instructor.

617 Experimental Psychology of Learning 3 hrs.
An intensive study of selected topics with special emphasis upon the techniques employed in the experimental analysis of behavior in the human and infra human organisms. Lecture and laboratory.

618 Experimental Psychology of Perception 3 hrs.
An examination of the current facts and theories of sensation and perception. Lecture and laboratory.

620 Analysis of Abnormal Behavior 3 hrs.
An advanced study of the analysis of abnormal behavior, with consideration of the experimental foundations of the course interpretation and treatment of various deviant behaviors. Restricted to graduate students in Psychology.

624 Personality Theory 3 hrs.
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 3 hrs.
Topics include statistical decision theory, one factor analysis of variance, multiple comparison procedures, factorial designs, randomized block designs, fixed, random and mixed models, and basic issues in experimenal design. Prerequisite: PSY 580 or equivalent.

635 Correlation and Regression Analysis 3 hrs.
An advanced course covering simple and complex correlation and regression, analysis of covariance, and related topics. Prerequisite: PSY 634 or equivalent.

636 Experimental Design 3 hrs.
A study of true and quasi experimental designs, single organism vs. group designs, and artifacts and interpretation. Statistical and non-statistical designs. Prerequisite: PSY 634 or equivalent.

637 Advanced Data Analysis 3 hrs.
Advanced procedures for the analysis of single subject and group experimental designs including several variants of time series and analysis of covariance.
643 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 with particular attention paid to the "problem employee."

650 Professional and Ethical Issues 3 hrs.
A seminar devoted to topics of current as well as historical professional concern regarding professional application and research ethics. The American Psychological Association publications on professional ethics and the use of human subjects in research will be included in the required reading.

652 (672) Systems Analysis 3 hrs.
An advanced course stressing integration of behavioral analysis and systems analysis applied to the design, creation, and management of human services settings. Students will do analyses of human services settings in which they are involved and implement their systems designs in those settings. Concurrent involvement in human services setting or enrollment in service systems laboratory. Prerequisite: PSY 572.

654 (670) Mental Health Systems 3 hrs.
Comparative approaches to psychological problems: This course concerns the various ways in which psychological problems are treated and the organizations involved in the treatment.

655 Seminar in School Psychology 3 hrs.
A seminar devoted to current professional practices in School Psychology. Focus is on studying various model systems for delivery of special services in the schools, as well as the various legal, ethical, and practical constraints on operation of such systems. Techniques of system analyses and synthesis are covered as well as directive and process consultation methods employed to implement or facilitate operation of new school programs.

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: Individual 3 hrs.
Experimental problem-solving interventions applied on an individual client basis. Prerequisite: PSY 660 or permission of Instructor.

662 Behavior Change: Groups 3 hrs.
An examination of the behavioral, Gestalt, and Transactional therapy techniques of behavior change applied on a group client basis.

663 Behavior Change: Marital Therapy Methods 3 hrs.
An examination of the theories and techniques of behavior change interventions applied to marital problems of couples. Prerequisite: PSY 662 or permission of Instructor.

666 Behavior Change—Marital Therapy Methods 3 hrs.
Supervised experience in applying therapeutic interventions. The course consists of a co-therapy model of applying behavioral and experimental interventions to a simulated family group. Prerequisite: PSY 662, 663, or permission of Instructor.

667 Cognitive—Behavioral Therapy 3 hrs.
A course designed to familiarize the clinical student with the theory and techniques of a cognitive-behavioral approach to therapy with major emphasis on rational-emotive therapy as applied to individual and group settings. Prerequisite: PSY 661 and permission of Instructor.

668 Behavioral Assessment and Counseling 3 hrs.
The course is intended to develop proficiencies in the assessment of behavior problems and the application of behavioral therapy techniques, including systematic desensitization, contingency management, self management, behavioral weakening operations, and assertive training. The legal and ethical implications of these practices are also discussed. Prerequisite: PSY 661, nine hours graduate credit in Psychology, or permission of Instructor.

674 Verbal Behavior 3 hrs.
The experimental analysis of language and verbal behavior, with an emphasis upon the analysis of language as presented in the writings of Skinner.

675 Verbal Behavior Applications 3 hrs.
The application of the principles and concepts of behavioral analysis to the areas of deafness and sign language, first and second language learning, reading, and related problems. B. F. Skinner's analysis of verbal behavior is contrasted with other treatments of these problem areas. Prerequisite: PSY 674 or equivalent.

676 Skinner's Recent Writings 3 hrs.
A consideration of About Behaviorism and Beyond Freedom and Dignity, especially as they consider issues of broad scientific, philosophic, and social significance. A much earlier work, Walden Two, is studied for historical and contrastive perspective. Prerequisite: nine hours of graduate credit in Psychology or permission of Instructor.

678 Behavioral Analysis and Cognitive Psychology 3 hrs.
The first third of the course will consider behavioral approaches to the kinds of issues that are the major focus of cognitive psychology: complex human learning, memory, thinking, problem solving, imagery, language, and the self. The remainder will survey and analyze the approach to these issues taken by various types of cognitive psychologists: developments from the field of verbal learning, information theory, psycholinguistics, ethology, Piaget, and the cognitive behaviorists. Prerequisite: nine hours of graduate credit in Psychology or permission of Instructor.

681 Personality Measures (Non-Projective) 3 hrs.
Survey of the theory of personality assessment and the basic concepts of non-projective measurement, with emphasis on the administration scoring and interpretation of various instruments for personality evaluation. The course includes, but is not limited to, the supervised practice in the administration of the MMPI, clinical analysis questionaire, and observational rating scales. Prerequisite: PSY 601 or equivalent and graduate program status.

682 Norm Reference Testing: Interpretation 2 hrs.
A lecture course with an emphasis on basic psychometric concepts, related to the theory and interpretation of test results and psychological assessment reports. The selection of remedial educational programs related to these test results, as well as the recent issues in intelligence testing controversy are discussed. The course emphasizes the selection of standardized test batteries and assessment techniques, including but not limited to: Stanford-Binet Intelligence Scale (1972), McCarthy Scales of Children's Abilities (1972), Peabody Picture Vocabulary Test, Bayley Scales of Infant Development, ITTPA, Columbia Mental Maturity Scale, WPPSI, WISC-R, and WAIS. Prerequisite: 601 or equivalent and degree program status. Not open to students completing PSY 683.

683 Norm Reference Testing: Interpretation and Administration 4 hrs.
A combined lecture and lab in individual assessment. Lecture focuses on basic psychometric concepts directly related to test administration and interpretation, as well as behavioral concept and operation analyses of performance on specific test items, development of written personalized educational programs from collected assessment data, and writing of clear and useable reports. Recent issues in the intelligence controversy are also covered. Laboratory focuses on supervised experience in administering, scoring, interpreting, and developing short term educational plans using selected batteries of standardized individual assessment techniques, including but not limited to: Stanford-Binet Intelligence Scale (1972), McCarthy Scales of Children's Abilities (1972), Peabody Picture Vocabulary Test, Bayley Scales of Infant Development, ITTPA, Columbia Mental Maturity Scale, WPPSI, WISC-R, and WAIS. Prerequisite: PSY 601 and graduate standing in school or clinical psychology or permission of Instructor. Not open to students completing PSY 662.

684 Personality Assessment: Projectives 3 hrs.
An intensified study of and supervised practice in the administration, scoring, and interpretation of the Rorschach, revised Bender Gestalt, TAT
and other projective tests. The course emphasizes the selection and interpretation of an integrated projective tests battery for clinical evaluations. Prerequisite: PSY 601, 681, and degree program status.

686 Criterion Referenced Assessment 3 hrs.
A combined lecture and laboratory course covering theory and basic concepts related to criterion or domain referenced behavioral assessment. Supervised experience in administering, scoring, and interpreting selected formal and informal criterion referenced assessment systems, as well as developing personalized interview on plans with the collected data. Focus is on academic and social behavior, including but not limited to: reading, language, mathematics writing, spelling, fine and gross motor, social, and self-help skills. Formal systems include: SRA Diagnostic Aids; reading and math, Pupil Record of Educational Behavior, Bessie (basic educational skills inventory) Criterion Test of Basic Skills, Assessment of children's language competency, Basic Concept Inventory, Key Math, and Woodcock Reading Mastery Test. Prerequisites: Graduate standing in school psychology, special education, or permission of instructor; PSY 683, 517, and 519.

690 College Teaching Seminar 3 hrs.
Discussion and design of college instructional technology, especially recent developments and research. Topics considered are decision-making, source materials, behavioral objectives; course design and programming, testing and evaluation, remediation, and grading practices.

691 College Teaching Practicum 3 hrs.
Supervised practice in the instruction of Psychology at the undergraduate level. The student will be responsible for the design, execution, and evaluation of a college course section involving undergraduate students.

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 Topical Studies in Psychology 2-4 hrs.
An in depth examination, discussion, and survey of selected research and professional topics. Permission of instructor. May be repeated for credit, although the total number of credits may be limited by the degree program. Students should consult the program adviser. Courses may include:
- Applied Multivariate Analysis
- Advanced Industrial Psychology
- Behavior Analysis of Parenting
- Wechsler Lab
- Radical Behaviorism

699 Advanced Practicum in Psychology 1-4 hrs.
In depth training in the application of the principles of psychology to a specific and restricted professional and/or research problem area in the discipline. The intent of the practicum is to provide the opportunity to work at the solution of a particular applied or basic research problem, rather than gaining general experience at a professional service or research site. The content of the practicum activity is often identified by the title of the site listed in the published schedule. May be repeated for credit, although number of credits may be limited by program requirements. Written permission must be obtained on forms available in departmental office.

Behavior Analysis in the Public Schools
Alternative Methods of Education
School Adjustment Problems
Corrective Reading and Language
Psychological Services Clinic

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.
725 Doctoral Research Seminar 2-6 hrs.
730 Doctoral Dissertation 15 hrs.
735 Graduate Research 2-10 hrs.

Religion (REL)

Lawson, Chairperson; Professors Earhart, Grundler, Loew, Siebert; Associate Professors Bischoff, N. Falk, Kaufman; Assistant Professor Ede.

Open to Upperclass and Graduate Students

500 Historical Studies in Religion 2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from seminar to seminar. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Zen Buddhism; Buddhism; Taoism; Shinto; New Religions of Japan; Religion in Japanese Literature; Islam in the Modern World; Christian Theology to 1500; Renaissance and Reformation Theology.

510 Morphological and Phenomenological Studies in Religion 2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from seminar to seminar. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Scientific Issues in the Study of Religion; the Critical Theory; Myth and Symbol in Religion and Literature.

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 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 a Secondary Education Curriculum which includes the academic study of religions as a minor.

530 Constructive Studies in Religion 2-4 hrs.
The topic to be announced in the Schedule of Classes. The content of the course will vary from seminar to seminar. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Religious Images of Man; Christian Humanism; the Structure of Religion.

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 Chairperson of the Department must be secured in advance of registration.

Open to Graduate Students Only

621 Introduction to the Academic Study of Religions 2 hrs.
This course is designed for those candidates in the graduate program leading to an M.A. in the Teaching of the Academic Study of Religions who have not previously completed a major, minor, or teaching minor sequence at Western Michigan University. The course is intended to give the student a broad overview of the actual wealth of religious phenomena and attempts that have been made to arrange the data according to a certain order. Among the problems to be considered are (1) the major types of religious expressions, such as ritual, myth, and social institutions, and their relationship to various types of culture; (2) the study of different aspects of religion, such as the identity and change of particular religions, structures of the religious experience, and common religious forms; (3) the methods employed in the study of religion, such as the historical, comparative, hermeneutical, and morphological methods; and (4) the various fields into which the study of religion is commonly divided, such as the history of religion, the philosophy of religion, the sociology of religion, the psychology of religion, etc.

622 Seminar-Practicum on the Teaching of the Academic Study of Religions in the Public Schools 2-4 hrs.
This course is intended to familiarize the candidate with didactics of religion. It seeks to answer the question, "How do I best teach the
Open to Graduate Students Only—Please refer to The Graduate College section for course description.

710 Independent Research 2-6 hrs.

Science Division (SCI)

Distinguished University Professor G. Mallinson; Professors Derby, Holkeboer, VanderBeek; Associate Professors J. Mallinson, Poel.

Open to Upperclass 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 111, 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 member of the graduate faculty.

Open to Graduate Students Only

610 Science for Elementary Teachers 2 hrs.
Indicates the part played by science experience 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 4 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 in the Science Education doctoral program. The subject of the seminar will vary from one semester to the next. May be repeated for credit.

Social Science Division (SSCI)

Associate Professors Fox, Large, Mortimore.

Open to Upperclass 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. Solely for persons in the behavioral sciences. 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.

510 Studies in Teaching Social Science: Variable Topics 3 hrs.
A specialized course for Social Studies teachers, dealing with an examination of selected areas of concern not intensively covered in survey courses. Specific topic will be designated in course title when scheduled. Specific topics may include: Simulation Games, Social Science Course Objectives & Accountability, Measurement & Evaluation. May be repeated for credit with a different topic. Prerequisite: Teaching Methods.

Open to Graduate Students Only

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.

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 area. 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.

Sociology (SOC)

Chaplin, Chairperson; Professors Bouma, Brawer, Cothran, Erickson, Horton, Hunt, Lewis, Martin, S. Robin, Wagenfeld, Walker; Associate Professors Brainthwaite, Friday, Markle, E. Robin, Rose, Smith, Sonnad; Assistant Professors Bradfield, MacDonald, Petersen, Van Valey, Wait, Wlenir.

Open to Upperclass and Graduate Students

500 History of Social Thought 3 hrs.
A critical survey of the social thinking of outstanding students of society from Plato to modern social scientists. Prerequisite: Nine hours of sociology.

501 Social Systems Theory and Analysis 3 hrs.
An investigation and critique of social systems theory, general systems analysis, and specific systems analysis techniques which have been used in social organizations. Each student will be required to conduct a systems analysis during course. Prerequisite: SOC 200 or 600, or consent of instructor.

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, narcotics addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 210, or consent of instructor.

515 Social Conflict 3 hrs.
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: SOC 200 or 600, or consent of instructor.
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.

521 Socialization and Personality Development 3 hrs.
An investigation of the development of individual knowledge and abilities during childhood as acquired through social interaction and biological maturation. Social theories of learning and child development will be covered, with emphasis on such topics as biological maturation and social learning, language acquisition, the development of self, and the acquisition and systematic organization of beliefs, attitudes, norms, and values. Prerequisite: SOC 320 or consent of instructor.

523 Contemporary Social Movements 3 hrs.
A study of the origins, growth, and effects in contemporary society of social movements. Selected social movements including communism, fascism, the radical left, the radical right, women’s liberation, etc., will be analyzed. Prerequisite: SOC 200 or 600, or equivalent.

525 Social Psychology of Education 3 hrs.
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.

531 Studies in Social Change: Designated Areas 3 hrs.
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. 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: Consent of instructor.

533 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 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. 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.

535 Changing Social Systems: Sub-Saharan Africa 3 hrs.
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 equivalent, or consent of instructor.

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, or consent of instructor.

553 Urban Sociology 3 hrs.
An introduction to sociological theory and research on the city including ecological theory, social psychology, institutional analysis, structure and processes like metropolitanization, suburbanization, and planning. Cities in developed and developing societies will be compared and contrasted and specific attention will be given the industrial biases of current urban theories.

554 Demographic Methods 3 hrs.
This course will investigate the sources and validity of census, vital statistics, and other population data. Students will evaluate measures of population composition relating to racial, marital, educational, and economic characteristics; assess various techniques for the analysis of mortality (life tables), reproduction and natality, migration and mobility; with different sources of data, learn techniques of estimating and projecting future population trends.

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 social stratification. Conflict and functional theories of stratification are treated. Prerequisite: SOC 200 or 600, or consent of instructor.

564 Juvenile Delinquency and the Community 3 hrs.
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.

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 accumulated knowledge of the phenomena of crime and delinquency. Selected techniques are studied in relation to a typology of normative deviance in terms of both etiology and rehabilitation. This course is cross-listed with Social Work 565. Prerequisite: Consent of instructor.

566 Advanced Criminology 3 hrs.
A critical analysis and evaluation of selected controversial issues in modern criminology. Topics include the legal-social dichotomy of the juvenile court, recent approach to delinquency prevention, recommendations for decriminalization, the phenomena of organized crime and white-collar crime, and the feasibility of capital punishment. Prerequisite: SOC 362.

570 Studies in Social Institutions: Variable Topics 1-4 hrs.
An examination of a selected topic in the area of social organization or institutions. The focus of the course will be substantive, but theoretical and methodological concerns will also be covered. Possible topics could include work and leisure, occupations and professions, sociology of science, mass society, macro-sociology, arts, and others. May be repeated for credit with a different topic. 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: SOC 200 or 600, or consent of instructor.

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 Sociology of School Organization 3 hrs.
Advanced studies of education as an institution, emphasizing interaction with other social institutions and analysis of internal organization. Attention is focused on the school and social change, schooling and the control of society, and schooling and stratification, as well as impediments to change, power and authority structures and the schools, the teaching profession, and student social structures. Prerequisite: Six hours of sociology or consent of instructor.
577 Sociology of Learning 3 hrs.
Advanced studies of education focusing on the impact of culture and school organization on learning in the educational setting. Topics include cultural forces such as ethnicity, religion, socio-economic status and bureaucratic structure, classroom organization, team teaching and the open classroom, segregation, and school type. Prerequisite: Six 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 Social Statistics 3 hrs.
An introduction to statistical reasoning and application with particular reference to social science. The course will view statistics as an aspect of scientific inquiry and consider problems of analysis and interpretation of typical social science data. Not for sociology majors.

581 Logic and Analysis of Social Research 5 hrs.
This course is designed to integrate the philosophy and logic of science with that of research analysis and statistics necessary for graduate study. The course will include an introduction to the philosophy of science; techniques of theory construction; logic of measurement; descriptive, inferential, and multivariate statistics; and the logic of analysis. Prerequisite: SOC 382 or equivalent.

583 Research Design and Data Collection 4 hrs.
This course is designed to familiarize students with the development of data-gathering techniques and research proposals. The course will include problem specification, research designs, measurement and scaling, and proposal development. Prerequisite: SOC 200 or 600, or equivalent.

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 chairperson.

Open to Graduate Students Only

600 Social Dynamics of Human Behavior 3 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 3 hrs.
An advanced, intensive study of certain selected theoretical topics of contemporary significance. Prerequisite: One course in sociological theory and consent of instructor.

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 Deviance and Social Problems Theory 3 hrs.
An intensive and critical examination of the historical development and current status of the major theoretical orientations in the study of deviance and social problems theory.

611 Proseminar on Social Problems 3 hrs.
A critical overview of the current state of knowledge in the major subfields of social problems. Emphasis will be placed on conceptual and methodological problems in the areas and the relationship of each of these areas to one another.

614 Seminar in Ethnic Relations 3 hrs.
Advanced study of race and ethnic relations, problems, and trends. Prerequisites: SOC 314 or 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: Consent of instructor.

617 Etologies of Substance Abuse 3 hrs.
A study of the various social and behavioral theories regarding the causation of alcohol and drug addiction. The findings of research will be examined as they tend to support or disaffirm these social and behavioral theories. This course is cross-listed with Psychology.

618 Seminar in Substance Abuse I 3 hrs.
An interdisciplinary seminar designed to reflect broadly conceived intervention strategies ranging from primary prevention to rehabilitation of the addict. The basic training in the principles of intervention and clinical practice will continue to be taught within the student's basic professional discipline. In part, the seminar will be used to elaborate upon the applications of these principles to the problems of substance abuse. This course is cross-listed with Biology, Counseling-Personnel, Psychology, and Social Work.

619 Seminar in Substance Abuse II 3 hrs.
Continuation of SOC 618. This course is cross-listed with Biology, Counseling-Personnel, Psychology, and Social Work.

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: 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 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.

630 Comparative Methods 3 hrs.
Sociological analysis of selected societies around the world with particular emphasis on theoretical and methodological problems: aggregate data analysis, development of social indicators, and an appraisal of macrosociological theories. Prerequisite: SOC 583 and 604.

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 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.

633 Comparative Urbanization 3 hrs.
An examination of similarities and differences in the urbanization of pre- and post-industrializing areas, in both western and non-western societies. Particular attention will be paid to planned cities. Major themes covered will be rates of growth, the structure of migration to cities, the ecological zones within cities, the national system of urban areas, and the political and economic functions of dominant cities at varying stages of industrialization. Prerequisite: SOC 200 or 600 or consent of instructor.

654 Seminar in Population Studies 3 hrs.
A sociological investigation into the dynamics and growth of human populations, emphasizing the historical and on-going debate concerning theoretical and methodological problems in the study of fertility, mortality, and migration processes. The course evaluates the relationships between population processes and modernization, as well as focusing on problems and policies in developed countries. Prerequisite: SOC 200 or 600.

660 Seminar on Theories of Crime 3 hrs.
This course will deal with the most current theoretical developments in criminology, evaluating research related to the verification of theories and analysis of the objectives of theory, the requirements of theory, and the testing of theory. Prerequisite: SOC 566.

661 Seminar on Current Issues in Criminology 3 hrs.
This course will deal with the current debates and controversies in criminology, radical versus traditional perspectives, economic and white-collar crime as areas of research, the ethics of criminological research, environmental design and crime, and other timely and relevant issues emerging from current literature and conference debates.

662 Comparative Corrections 3 hrs.
Review and analysis of the philosophies of corrections in different societies, the implementation of penal measures and innovative and alternative strategies of social control in eastern and western Europe, Asia, and the United States.

663 Comparative Criminology 3 hrs.
An analysis in depth of crime as this phenomenon is viewed in Sweden, Germany, Poland, and other eastern and western European countries. Emphasis is placed on theoretical and etiological approaches in different societies, and the applicability and tests of theories in these societies. Prerequisite: SOC 566.

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 relationships 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: SOC 200 or 600, or consent of instructor.

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 3 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.

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: Consent of instructor.

680 Studies in Research Methodology: Variable Topics 3 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 Advanced Multivariate Analysis I 3 hrs.
An introduction to the assumptions, logic, and application of current multivariate techniques of analysis such as regression analysis, path analysis, factor analysis, and canonical correlation. Prerequisite: SOC 583.

682 Critical Methodology 3 hrs.
An intensive methodological examination of selected, substantial contributions to sociology. The course is designed to give students a thorough working knowledge of advantages and disadvantages of alternative research strategies. Prerequisite: SOC 583.

683 Research in Sociology 3 hrs.
The purpose of this course is to acquaint all new students with current faculty research and opportunities within the various substantive areas of sociology. Professors in the department will discuss, either individually or in roundtable discussion, their own research and professional activities as they might relate to thesis or dissertation work of graduate students.

684 Measurement and Scaling 3 hrs.
This course is designed to acquaint students with the theory and techniques of unidimensional and multidimensional scaling. Problems in scale design, analysis, and usage will be explored. Prerequisite: SOC 583.

685 Advanced Multivariate Analysis II: Variable Topics 3 hrs.
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 681 or equivalent.

686 Qualitative Statistical Methods 3 hrs.
This course involves the use of multivariate procedures of analysis in which classificatory variables are used. Complex contingency tables and multiple classification procedures are techniques considered in which the interactions of variables are analyzed. Prerequisite: SOC 583.

687 Evaluation Research I 3 hrs.
The basic purpose of this course is to familiarize students with the various research techniques for evaluating action agencies through a survey of the literature, study of evaluation models, and study of techniques and procedures used in evaluation. Prerequisite: SOC 583.

688 Practicum in Social Research 3 hrs.
A research seminar structured to provide practical experience in various phases of research related to the student's major area of interest. Under faculty supervision, students will act as consultants to projects initiated by other agencies in the community or carry out their own supervised projects. May be repeated in different areas of concentration with permission of student's doctoral committee. Prerequisite: SOC 583.

689 Evaluation Research II 3 hrs.
The purpose of this course is to provide an opportunity to conduct an actual evaluation study based on the techniques and procedures covered in SOC 687. The course will include discussion of each student's evaluation findings. Prerequisite: SOC 687.

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 approaches 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 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. Graded on a Credit-No Credit basis.

696 Supervised College Teaching in Sociology 1 hr.
Teaching of a section of a sociology course under supervision. Prerequisite: SOC 695 and approval by department chairperson.

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.
College of Business

DARRELL G. JONES,
Dean

Graduate Offerings:
Accountancy
Business Education and Administrative Services
General Business—Finance—Law
Management
Marketing
Accountancy (ACTY)

Newell, Chairperson; Professors Burke, Everett, Neubig, Welke, Wentworth; Associate Professors Daniels, Schaeberle, Sheppard; Assistant Professors Boyd, Laudeman, Morris.

Open to UppereIass and Graduate Students

513 Accounting Information Systems 3 hrs.
A study of concepts, organization, technology, and controls of an accounting information system. Includes a study of specific applications (payroll, accounts receivable, etc.), with particular emphasis on data input, processing, and output utilizing the computer. Prerequisite: Management 102, Accounting 310, and Accounting 322, or their equivalent.

516 Auditing 3 hrs.
The theory and practice of auditing business enterprises and government agencies. Topics include a review of professional pronouncements, internal control concepts, ethics, and a discussion of audit objectives. Prerequisite: ACTY 311 or equivalent.

518 Accounting Theory and Problems 3 hrs.
A study of financial accounting theory and practice. The course is organized around pronouncements of the Financial Accounting Standards Board and other authoritative bodies. Case studies are used to illustrate application of the concepts of such pronouncements. Prerequisite: Senior standing and accounting major.

521 Studies in International Accounting 3 hrs.
A comparative study of the accounting principles, reporting standards, and 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 organizations. The course includes: the application of costs to operations and to products; the preparation and analysis of detailed cost information; and the methods and procedures for solving complex cost problems encountered in industry. Prerequisite: ACTY 322 or equivalent.

524 Studies in Tax Accounting 3 hrs.
Special studies related to tax problems of individuals, partnerships, and corporations. Emphasis is on federal taxation of corporations, trusts, and estates. Prerequisite: ACTY 324 or equivalent.

598 Readings in Accounting 1-4 hrs.
Directed individual study of topics not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

Open to Graduate Students Only (Not open to students with PTC status)

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. Prerequisite: Written consent of instructor.

606 Advanced Financial Accounting 3 hrs.
An intensive study of asset valuation, liabilities, corporate capital, and the determination of income. Prerequisite: ACTY 211 or equivalent.

607 Accounting Control and Analysis 3 hrs.
A study of management systems and techniques used for profit planning and control of a business firm. Organizational relationships and implications are examined in the development of operations controls, management controls, and strategic planning. This course is in the graduate business core, and is closed to students with credit in Cost Accounting 322 or its equivalent. Prerequisite: ACTY 211 or equivalent.

608 Advanced Accounting 3 hrs.
A study of advanced accounting problems distinctive to corporate and partnership types of business organizations. Prerequisite: ACTY 606 or equivalent.

610 Seminar in Accounting Theory 3 hrs.
Intensive examination and study of the underlying postulates, concepts, and principles of accounting. Course may be repeated under different topics. Prerequisite: Consent of instructor.

617 Seminars in Controls 3 hrs.
The functions of controls in the organization. The controller’s relation to the establishment, control, and interpretation of accounts for the internal administration of the organization is emphasized. Prerequisite: ACTY 607 or equivalent.

622 Advanced Cost Accounting Concepts 3 hrs.
A study of advanced methods of cost measurement and control. Includes standard cost, budgetary control, profit-volume analysis, direct cost, return on employed capital, and quantitative methods. Prerequisite: ACTY 322 or equivalent.

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 acquisitions, 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 equivalent.

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 (BED)

Niemi, Acting Chairperson; Professors Bournazos, Jones, Marietta, McKitrick, Moskovis; Associate Professors Branchaw, DeYoung, Freeman, McBeth, Sanders; Assistant Professors Bowman, Halvas, Shull.

Open to UppereIass and Graduate Students

542 Report Writing 3 hrs.
Intensive discussion and practice of the commonly used report-writing techniques. The study includes various formats and graphics of reports. In addition to writing several brief reports, students prepare a complete research report and give one oral report. Open to students with junior standing and above. Prerequisite: BED 242.

554 Topics in Business Communication 3 hrs.
An intensive study of a topic in business communication such as communication systems, business media, business publicity, and others. The topic will be announced in advance. May be repeated for credit.

555 Topics in Data Processing 3 hrs.
Special topics appropriate to business applications such as programming documentation and efficiency, planning, organizing and directing management information systems. Course may be repeated. Prerequisite: Permission of instructor.

556 Office Management 3 hrs.
Areas of office administration from the manager’s viewpoint. Particular emphasis is placed on developing, managing, and controlling office systems, as well as the role administrative managers play in managing human resources.

557 Topics in Administrative Services 3 hrs.
Includes an intensive study of a selected topic in Administrative Services such as consumer relations, communication audits, office systems, work measurement and simplification, forms control and design, and others. The topic will be announced in advance. May be repeated for credit.

560 Office Systems and Procedures 3 hrs.
A study of paper-handling systems and procedures. Emphasis is placed on office systems and the techniques of systems development including fact gathering and recording, work analysis, and office work simplification and measurement. Prerequisite: MGMT 102.

561 Advanced COBOL 3 hrs.
Continuation of BED 261, including advanced treatment of sequential access; plus index sequential and random access, report writer, COBOL report generator, documentation, efficiency, and data-base management systems. Prerequisite: BED 261.
583 Coordination Techniques in Office Education 3 hrs.
A study of the role and responsibilities of the office education coordinator in the 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 Secretarial Subjects 3 hrs.
A study of the latest research findings, materials, teaching procedures, tests and measurements, and developments in secretarial subjects.

585 Principles of Skill Instruction 3 hrs.
After studying the principles of skill learning, each student will have an opportunity to develop a complete teaching-learning system for a typewriting or shorthand program.

586 Improvement of Instruction in Typewriting 3 hrs.
A study of the latest research findings, materials, teaching procedures, tests and measurements, and developments in typewriting.

588 Improvement of Instruction in Accounting/Computing Programs 3 hrs.
A study of the latest research findings, materials, teaching procedures, tests and measurements, and developments in the accounting/computing programs.

589 Organization and Teaching of Office Practice 3 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.

590 Vocational Block Programs 3 hrs.
Examines purposes and philosophy of vocational block programs; considers instructional development, classroom management, and program evaluation. Required for vocational office endorsement. Senior standing only.

591 Improvement of Instruction in Basic Business/Economic Education 3 hrs.
A study of the latest research findings, materials, teaching procedures, tests and measurements, and developments in basic business, consumer, and economic education.

596 Independent Study 1-4 hrs.
A directed independent project in an area of business education or administrative services. Prerequisite: Consent of department head.

598 Readings 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 3 hrs.
The challenges of business education in a changing world of work. Problems and objectives of business education to meet vocational choices of students in today's automated, free enterprise, democratic society. Particular emphasis is given to the career education and counseling of the business student.

683 Supervision and Administration of Business Education 3 hrs.
Principles and problems involved in the administration and supervision of business education programs. Emphasis is placed on the work of the department head, city, and state business education supervisors.

685 Research in Business Education 3 hrs.
An examination and analysis of research in business education with emphasis on utilization of these findings in the upgrading of instruction. Research tools and methodology are also examined.

690 Methods and Materials in Business Education 3 hrs.
A consideration of the latest research methods, materials, equipment, curriculum development, objectives, and standards in the teaching of specific business subjects. 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.

720 Specialist Project 2-6 hrs.

General Business (BUS)

FINANCE AREA

Professors Burdick, Edwards, Grossnickle; Assistant Professor Balk.

Open to Upperclass and Graduate Students

520 Portfolio Analysis and Management 3 hrs.
In-depth approach to the development and administration of security portfolios. Emphasizes the investment strategies followed by individuals and by portfolio managers in financial institutions. Latest portfolio strategies and techniques are studied and evaluated. Prerequisite: Finance 327 or equivalent.

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. Prerequisites: Finance 320 or equivalent or consent of instructor.

522 Real Estate Management 3 hrs.
Management of income-producing properties as an agent of the owner. Consideration of professional standards, business promotion, leasing, insurance, and maintenance. Prerequisite: GBUS or consent.

526 Group Insurance and Pensions 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: Finance 322.

528 Insurance Company Management 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: Finance 323.

598 Readings in General Business—Finance 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

608 Financial Management 3 hrs.
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. Techniques used include case analysis and problem solving. Demonstrates financial management's role in the total management effort. Prerequisite: Finance 320 or equivalent.

A survey of the financial considerations in the administration of institutions of higher education. The topics covered include the management of short-term investments, the management of endowment funds, budgeting for operations and for capital projects, and the development and implementation of group insurance and pension programs. Prerequisite: Advisor's consent.

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 procedures. 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 (e.g., merger, acquisitions, divestments, liquidations). 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 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 function 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

Morrison, Chairperson; Associate Professors Bliss, Gossman; Assistant Professors Batch, McCarty, Stevenson.

Open to Upperclass 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 Estate 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.

598 Readings in General Business—Law 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

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.

609 Law and the Administration of Higher Educational Institutions 1-4 hrs.
A survey of statutes, case decisions, and developing legal principles affecting the administration of higher educational institutions. Teachers, counselors, staff, and administrative personnel will become acquainted with some of the legal rules and procedures with which today’s colleges and universities must deal.

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 Upperclass 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 organization, supplemented by coordinated faculty lectures and assigned readings. Undergraduate or graduate credit of six hours, in one of the following departments upon consent of department head: Accounting, Business Education, General Business, Management, or Marketing.

Open to Graduate Students Only

600 Seminar in Business 3 hrs.
Intensive problem-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)

Hartenstein, Chairperson; Professors Booker, Carey, Keenan, Leader, Rizzo, Schneider, Smith; Associate Professors Hill, Treslin, Upjohn, Wallace; Assistant Professors Beam, Kemelgor, Mason, Planišek, Woodhouse, Zehnder.

Open to Upperclass and Graduate Students

500 Management Literature 1-4 hrs.
Studies in specialized areas of the management literature. The student will prepare an original paper on an assigned topic. Prerequisite: Permission of instructor.

520 Planning for the Future 3 hrs.
An exploration of alternative ways of predicting future events, selecting long-range goals, and systems-planning for achievement. A variety of forecasting and planning methodologies will be examined. Skill will be gained in the more common and well-developed methods through class exercises. Graduate students will be expected to develop an independent application in an area of interest.

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 nonparametric tests. Prerequisite: MGMT 200.

542 Multinational Management 3 hrs.
An examination of management strategy, controls, environmental influences of the multinational corporation with consideration of geographic factors. The management function abroad will be examined in light of the cultural assumptions underlying U.S. management and will deal with the necessary modification for effective operations in a cross-cultural environment.

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.
A systematic study and application of the scientific method to management decision-making. Introduction to techniques of linear programming, inventory theory, scheduling theory, and other optimizing decision models. For students who will take more specialized courses as well as those in other disciplines desiring a limited exposure to the field. Prerequisite: MGMT 200.

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, 554.

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/her 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. Prerequisite: MGMT 300.

630 Systems Design and Evaluation 3 hrs.
A survey of systems analysis and the various techniques to select among alternative courses of action when components of the problem cannot be measured accurately and precisely. Students will complete a project examining an existing system. Advanced standing (15 hrs.) recommended.

642 Statistical Interpretation 3 hrs.
A survey of the advanced statistical techniques as applied to business problems. Includes probability theory; testimation 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 400.

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.

653 Behavioral Science Application for Managerial Effectiveness 3 hrs.
Models, methods, and applied technology relevant to the control of human performance in complex organizations. Emphasis on achieving human outputs such as productivity, satisfaction, learning, retention, decisions, problem solutions. Applied technologies could include selection, placement, job, and organizational analysis and evaluation.

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.

657 Behavior Analysis Applications 3 hrs.
Applications of behavior analysis and the principles of behaviorism to management problems in public and private organizations. Emphasis is placed on maintenance of performance reliability, effectiveness, and efficiency. Students will apply principles to the improvement of an existing organization.

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; Associate Professors Orr, Varble; Assistant Professors Crow, Lindquist, Long.

Open to Upperclass and Graduate Students

570 Problems in Retailing 3 hrs.
Designed to analyze current retailing problems; market segmentation, inventory planning and control, vendor evaluation, store services, traffic patterns, and warehousing. Report required. Prerequisites: Permission of instructor and Senior level.

572 Advertising Media and Campaigns 3 hrs.
Examines theory and practice of media research, use of Audit Bureau of Circulation data, broadcasting ratings, copy testing, development of media plans, and scheduling as required for advertising campaigns. Prerequisites: MKTG 374 and 474.

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 Strategy 3 hrs.
Identification of marketing problem situations and cause diagnosis with development of appropriate marketing strategies. Stress placed on application of marketing fundamentals to factual case situations and on decisions in a simulated dynamic environment. Communications of findings and strategies emphasized. Cases and computer games used. Senior level.

577 Advertising Theory and Ethics 3 hrs.
Critical examination of social, cultural, and ethical implications of "public and business" responsibilities involved in the advertising function. Special student interests developed through research and term projects. Prerequisite: MKTG 374.
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 Quantitative Analysis for Marketing Decisions 3 hrs.
Application of quantitative methods of marketing decisions; utilizes analytical tools in areas of product, price, distribution, and promotional aid in development of models for effective marketing decisions.

673 Product and Pricing Strategies 3 hrs.
In-depth consideration of product life cycle including addition, modification, deletion analysis; special attention to demand analysis, cost considerations, competitive actions, and governmental regulations.

674 Promotional Strategy 3 hrs.
A decision-making course, taught using the case method; includes exposure to communications, demand analysis, promotional objectives, budget determination, personal selling resource management, reseller support, and promotional campaigns.

675 Analysis of Distribution Systems 3 hrs.
Organization, structure, and behavior channels of distribution; focus on various distribution systems through which goods are marketed; cases and problems utilized.

677 Buyer Behavior 3 hrs.
A decision-making course, taught using the case method; includes analysis of variables affecting buyer behavior. Course focuses on the consumer decision process and such influence on the process as culture, social status, economic condition, personality, the family, and mass communications.

678 Seminar in Marketing 3 hrs.
Intensive problem solving in the primary business fields. Prerequisite: 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
DAVID R. TAYLOR,
  Assistant Dean

Graduate Offerings:
Counseling and Personnel
Education and Professional Development
Educational Leadership
Health, Physical Education, and Recreation
Special Education
Counseling and Personnel (C-P)

Trembley, Chairperson; Professors Betz, Carlson, Griffeth, Hopkins, Martinson, Mazer; Associate Professors Bullner, Gebler, Lamper, Oswald, Richardson, Urbick.

Open to Upperclass 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; and overview of guidance services. Open to all students, but is not intended for counseling majors.

581 Interpretation and Use of Tests of 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 personnel 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 1-4 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.

598 Readings in Counseling and Personnel 1-4 hrs.
Advanced students with good academic record may elect to pursue independently the study of some special interest topic. The topic chosen must be approved by the instructor involved, and arrangements made with the instructor's 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, understanding, and self-evaluation for the student. Graded on a Credit/No Credit basis. May be repeated.

An introductory course encompassing a thorough investigation of philosophic concepts and principles undergirding counseling and pupil personnel programs in elementary schools. The history, organization, and administration of the program services are surveyed and practical application of concepts are required.

The purpose of this course is to enable students to understand, apply, and formulate programs of guidance as they apply to secondary schools. In particular the history, philosophy, role, function, organization, administration, and development of guidance will be examined in depth so that the counselor in preparation will have the necessary skills to assume an entry level position in secondary schools.

611 Introduction to Community and Agency Counseling 3 hrs.
A survey of counseling and administration counseling practice in agencies with families and individuals of all ages.

612 Student Personnel and Counseling in Higher Education 3 hrs.
History of growth and administration of student personnel services in community colleges, four-year colleges, 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.

616 Group Procedures 2 hrs.
An analysis of the role and function of group procedures 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.

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, and practice interviews, are provided to help make theoretical constructs concrete and practical and expose the student to the counseling relationship. As a culminating experience, the instructor may require students to conduct actual counseling interviews with selected clients. Prerequisite: 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: ED 601 or equivalent.

624 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 608, 609 or C-P 611 or C-P 612; ED 601 or equivalent.

627 Student Personnel Administration Practicum 2-4 hrs.
This unit provides practical work experience for students interested in the administration of student services in higher education. Times, settings, and activities are arranged. Selected readings, seminar meetings, and special projects are assigned according to individual student interest, experience, and professional goals. When elected for a total of four semester hours credit, students who do not intend to seek employment as counselors may substitute this course for C-P 628. Prerequisite: C-P 612. The course is offered on a Credit/No Credit basis. May be repeated.

628 Counseling Practicum 2-4 hrs.
This unit provides practical work in the student's area of specialization. Counseling 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 programs and in the student personnel program. Prerequisites: C-P 608, 609 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 department personal counseling requirement; six credit hours in cognate area. Graded on a Credit/No Credit basis. May be repeated.

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.

102
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 Aid, Societal and Economic Student Population Levels, Foreign Student Programs, and other areas of Higher Education.

631 Seminar in Substance Abuse I  3 hrs.
   An interdisciplinary seminar designed to reflect broadly conceived intervention strategies ranging from primary prevention to rehabilitation of the addict. The basic training in the principles of intervention and clinical practice will continue to be taught within the student’s basic professional discipline. In part, the seminar will be used to elaborate upon the application of these principles to the problems of substance abuse. This course is cross-listed with Biology, Psychology, Social Work, and Sociology.

632 Seminar in Substance Abuse II  3 hrs.
   Continuation of C-P 631. This course is cross-listed with Biology, Psychology, Social Work, and Sociology.

670 Administration of Counseling Services and Programs  3 hrs.
   Offered as a professional seminar to develop and enhance the leadership qualities of advanced graduate students. This seminar is designed to acquaint participants with a broad range of policies and procedures of administration drawn from various organizational settings. Each participant will develop an administrative manual or handbook which could be used as a set of guidelines for use in a setting appropriate to the student’s career objectives. Prerequisite: M.A. in Counseling.

671 Current Issues in Counseling and Personnel  3 hrs.
   This is an advanced seminar designed to provide an in-depth study of current and significant issues and recent research findings in the field of counseling and personnel. Students are expected to read extensively, participate in class discussions, present reports to the seminar group, and complete assigned projects. Guest presenters may be scheduled. Although no textbooks are listed, readings in books, monographs, and professional journals are assigned. Prerequisite: M.A. in Counseling.

672 Use of Clinical Judgment in Assessment  3 hrs.
   Clinical judgment in diagnosis and assessment is studied with the focus on sources of error that enter into the process of judging, diagnosing, and assessing. Opportunities for practicing the systematic use of behavioral observations and interviews are provided. Prerequisite: M.A. in Counseling.

673 Marital and Sex Therapy  3 hrs.
   The subject of human sexuality is examined from a variety of social, physiological, psychological, and cultural viewpoints. Various forms of sexual dysfunction are studied and examined for understanding of both physiological and psychological components and role of each in the dysfunction. Finally, there is in-depth study of current approaches to therapy as well as attention to other issues such as conjoint treatment of couples, resistance, sexual dysfunction in both partners, and sexual dysfunction and its relationship to marital discord. Prerequisite: M.A. in Counseling.

674 Psychological Development Theory for Counselors  3 hrs.
   This course is based upon a psychodynamic description and conceptualization of personality development and functioning from birth to death as expressed by Freud, E. H. Erikson, Klibler-Ross, and others. In addition, application of developmental theory in relation to the process of counseling and psychotherapy is considered. Prerequisite: M.A. in Counseling.

675 Counseling Theories and Practices  3 hrs.
   This is an advanced seminar in counseling theory and practice. The course is concerned with the technical aspects of the counseling relationship as well as the general practices of counseling. Prerequisites for the class include one formal exposure to counseling theory, supervised laboratory work, and experience in the field of counseling. The course is not designed to include practicum type experiences, but it is helpful if the participant is concurrently seeing clients on a paid or volunteer basis. Prerequisite: M.A. in Counseling.

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/her 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
   h. Development of personal theoretical positions

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. 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 on-going groups will use audio and video tapes, content analysis, and other evaluative techniques. 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.
725 Doctoral Research Seminar  2-6 hrs.
730 Doctoral Dissertation  15 hrs.

Education and Professional Development (ED)

Ryan, Chairperson; Distinguished University Professor Travers; Professors Adams, Bosco, Cain, Dickie, Erickson, Griggs, Hedin, Inselberg, Kanzler, Lambe, Lloyd, McGinnis, Middleton, Moore; Associate Professors Bladt, Brenton, Burns, Chapel, Cordier, Fisk, Harring, Hong, Howard, Kitty, Larsen, Miller, C. Smith, Taylor, Walker; Assistant Professors Armstrong, Bailey, Balkin, Brashear, Cowden, Crowell, D. Smith, Watson.

Open to Underclass 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, audiovisual materials, and the like. Each offering of 502, Curriculum Workshop, will be given an ap-
proportionate 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.

504 Adult Development and Learning
3 hrs.
This course will provide an in-depth look at each age and stage in the
life cycle. It will explore such problems as: the changing role of parents
and singles, the changing societal pressures on teachers, new adult life-styles,
mid-life career changes, the changing role of males and females, and
unique health stresses. Emphasis will be placed on the identification of
patterns of lifelong learning leading to a more fruitful and fulfilling life.

506 Teaching in Adult Education
3 hrs.
This course is designed to provide teachers with a knowledge of special
situations incurred in the teaching of adults. Included also are techniques
of interpersonal communication with adults, as well as a practical exercise
in the designing of learning experiences for adults. Extensive use will be
made of audiovisual media, experts in the field, and field observation in
adult learning activities. The course should be helpful to administrators in
planning in-service programs for their own staff.

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 con-
siderations 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 em-
phitized.

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.

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 basic 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 or reading procedures will be
studied through actual use with pupils. Prerequisite: ED 312 or 322 and
permission of instructor.

514 Nursery-Kindergarten Education
2 hrs.
This course will acquaint the students with the history and present-day
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 per-
spectives, 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
classrooms and other situations.

516 Professional Symposium in Reading
3 hrs.
This course is designed to be the initial course in the graduate program
in Reading. It is designed to present the basic concepts concerning the
nature of the reading process and the teaching of reading. Emphasis will
be placed on reading as a thinking process and on factors affecting reading
performance. Special emphasis will be placed on child development,
language development, concept development, physical, psychologial, and
environmental factors affecting the child's learning to read. In addition,
the course will provide a brief overview of the delivery systems and
procedures used in the U.S. to teach reading. This will involve an historical
overview as well as current and potential future practices.

517 Reading in the Content Area: Social Studies
3 hrs.
Designed to acquaint junior and senior high school teachers with the
reading skills which should be taught and refined in their specific curricular areas. An effort will be made to help teachers, through
demonstration and practice, achieve optimal benefit from secondary
textbooks and related reading materials.

518 Reading in the Content Area: Science, Mathematics, Industrial Arts, etc.
3 hrs.
Designed to acquaint junior and senior high school teachers with the
reading skills which should be taught and refined in their specific curricular areas. An effort will be made to help teachers, through
demonstration and practice, achieve optimal benefit from secondary
textbooks and related reading materials.

520 Implications of Piaget's Research for Curriculum Design
3 hrs.
Provides the student with an understanding of the structure of the
intellect developed by Piaget and examines the implications of this
structure for the design of the curriculum. Some practical work will be
combined with a study of the research on which Piaget has built his theory
of intellectual development.

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: ED 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, govern-
mental, 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
organization and administration of high school driver education programs.
 Laboratory work in dual control cars and driving range programs.
Prerequisite: ED 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: ED 442.

548 Audiovisual Media I
3 hrs.
An introduction to audiovisual media as effective means for achieving
educational objectives in presentational, interactive, and individualized
modes of instruction. Emphasizes evaluation, selection, production, and
and classroom use of commercially available and locally produced instructional
materials. Students are expected to participate in laboratory experiences in
which they produce materials such as mounted and laminated pictures and
displays, overhead projection transparencies, 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 twenty students.

549 Audiovisual Media II
3 hrs.
A continuation of ED 548, in which teachers and media specialists
consolidate basic audiovisual skills and deal in depth with more advanced
processes and techniques. Laboratory experiences may include production
of complex transparencies, 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 building
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
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 education philosophy and goals, curricula, administrative structure, educational technology, financing, and methods of instruction characteristic of selected European countries are 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.

597 Reading and Related Language Experiences 3 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.

600 Fundamentals of Measurement and Evaluation in Education 3 hrs.
This course is designed to develop understandings and competencies in educational measurement and evaluation. Emphasis is placed on the application of research techniques to evaluation, the interpretation of quantitative data in educational situations, and the application of basic evaluation models.

601 Fundamentals of Educational Research 3 hrs.
This course is intended to develop an understanding of the major types of educational research and the interpretation of research results. Emphasis is placed on familiarity with sources of research, searching the research literature, and interpreting research reports. Each student is expected to design a valid research study.

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/her 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.

606 Early Childhood Workshop: Learning and Curriculum 6 hrs.
This workshop promotes an understanding of how the young child learns; students will use these learning principles as bases for curriculum development. Students will construct materials and equipment and develop curriculum plans. Portions of the course can be designed to meet the individual needs of students. These will be taught by experts from appropriate fields within and outside of the University. Prerequisite: Admission to the master's program in Early Childhood Education.

607 Research Methods in Early Childhood Education 3 hrs.
The purpose of this course is to acquaint the student with major types of research about young children, the steps involved in conducting such investigations, and the basic statistical concepts needed for understanding and designing research. Students will be required to present a research proposal.

608 Seminar in Early Childhood Development 3 hrs.
The content of this seminar may vary each semester depending on the interests and needs of the students, but is invariably designed to provide an in-depth exploration of some facet of development in young children. Each student is expected to conduct a search of the literature on a specific topic. Topics may include child-rearing practices, sex-role identification, cognitive development, language acquisition, psychomotor development, and parent education.

609 Early Childhood Education in Perspective 3 hrs.
A study of the history of the education of young children with emphasis on the philosophy, the social settings, and the people who have influenced the movement.

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.

612 Reading Techniques for the Elementary Classroom Teacher 3 hrs.
This course is designed to provide an in-depth study of the nature of the methods and procedures used in teaching children to read. This course will provide opportunity for the production of original materials to be used in the classroom at the elementary level. Participation in classrooms will be required. Prerequisite: ED 516.

619 Clinical Studies in Reading 3 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 educational, physical, psychological, and sociological factors affecting reading performance. Students will be provided with a knowledge of both standardized and informal reading tests. Students should have the opportunity to construct, administer, score, and interpret both standardized and non-standardized reading tests. Emphasis will be placed on producing a practical bibliography of measurement instruments and materials. Prerequisite: ED 312 or 322.

620 Educational Therapy in Reading 3 hrs.
Laboratory application of knowledge gained concerning the psychological, sociological, and physiological factors affecting children's reading ability is stressed. The prevention, diagnosis, and treatment of reading problems is experienced through working with disabled readers. Students will become familiar with testing instruments, their use, administration, and interpretation. Students will also learn the basic approach of therapy and recognize those factors necessary for effective therapy. Prerequisites: ED 312 or 322 and 619.

621 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.

630 Seminar in Career Education 3 hrs.
This seminar will deal with both the processes and content related to the development and leadership for infusing career education into the existing K-12 curriculum.

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 together with their own students or as assistant and consultant to another teacher. Prerequisite: ED 548 or equivalent.

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: ED 549 or 550 or equivalent experience.

643 Practicum in Clinical Studies in Reading 3 hrs.
This course is intended to give students experience in employing both informal and formal standardized instruments and techniques necessary for the diagnosis and treatment of the disabled reader. The course emphasizes the use of various measurements pointing out their capabilities and limitations. Skills in interview, observing, diagnosing, planning, treatment, and working with parents and school personnel are taught. Prerequisites: ED 619 and 620.

644 School Media Specialist Seminar 2 hrs.
A team-taught course by Librarianship and Education faculty designed to synthesize course experiences in the school media specialist curriculum. Students are prepared for their initial experiences in seeking employment in the public schools and given experiences to help them function efficiently and effectively as professional school media specialists. Prerequisite: Written consent of departmental adviser. (Cross-listed with LIB 644.)

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: ED 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: ED 548 or equivalent experience. (Cross-listed with LIB 690.)

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: ED 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 new media program or for reorganization and improvement of certain phases of operation and improvement of certain phases of operation in an ongoing center. Limited to fifteen students. Prerequisites: ED 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 development 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.
The course is primarily intended for students who are preparing to teach at the college (community, four-year, or graduate) level. As much as practicable, the course will be conducted on an “action research” basis. Every opportunity to interact with college students on a firsthand, face-to-face basis will be utilized by the individual members of the class. Opportunities will be provided to investigate such topics as: the academic adjustment, capabilities, motivations, behaviors, attitudes, and factors affecting the academic achievement of college students; the effects of separation from home and family, effects of interpersonal relations, and effects of campus social life on college students; and economic stability as it affects college students. Prerequisite: ED 601.

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 3 hrs.
This course affords students the opportunity to build competencies attained in ED 643. Reading therapy is offered on a one student to client basis under the direction of a trained clinical therapist. The course serves as an instructional internship for working with pupils who have problems in reading and related areas. This course will provide graduate students practice in setting up prescriptive instructional objectives, selecting materials in terms of needs, and carefully designing instructional procedures for disabled readers. Prerequisites: ED 619, 620, 643.

654 Practicum in Reading Supervision 3 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. Prerequisite: ED 653.

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 affective factors, input and retention of information, and concept formation.

656 Organization and Administration of Reading Programs 3 hrs.
This course affords an opportunity for the individual to investigate the processes 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 reading education for all students. The course is intended to help students understand the development and management procedures of a reading program, kindergarten through adult basic education. Prerequisites: ED 597, 619, 687.

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 seminar as a culminating activity for the degree, and to bring to the meetings actual problems faced in their own teaching situations. Prerequisite: At least twenty-one hours completed in master’s program for teaching the disadvantaged.

663 Practicum in Teaching Reading at the Secondary Level 3 hrs.
This course is an instructional internship intended to provide op-
opportunities for individuals to work with small groups of secondary students who have demonstrated problems in reading and related areas. This course provides supervised classroom and/or therapy experiences with a variety of reading situations. Emphasis will be placed on the study, application, and evaluation of diagnostic teaching procedures. This course will provide graduate students practice in setting up prescriptive instructional objectives, selecting materials in terms of needs, and carefully designing instructional procedures for disabled readers. Prerequisite: ED 688 or 620.

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.

667 Improvement of Reading in Secondary Schools 3 hrs.

Designed to aid teachers in developing the reading abilities and skills of their students at the secondary level. Emphasis is placed on aims, materials, and procedures. Graduate students will become knowledgeable about the readability of textbooks, how to adjust work to range of ability. Opportunities for understanding and using standardized and informal instruments as measures of student progress will be afforded. Emphasis will be placed on the organization of course work for improving reading skills. Prerequisites: ED 312 or 322.

688 Diagnosis and Treatment of Secondary Reading Problems 3 hrs.

This course is intended to provide an opportunity for diagnosing reading difficulties at the secondary level. Applying appropriate diagnostic procedures that enable the diagnostician to provide effective remediation is stressed. Prerequisite: ED 687.

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 standards and curricular requirements of pre-professional, academic, and vocational courses; the guidance and counseling function; community services programs; and methods and materials of instruction at the college level.

695 Reading Seminar 3 hrs.

This course is designed to be the culminating course in each of the three streams in the master's program in Reading. Designed to acquaint teachers, reading specialists, and administrators with the current research and literature pertinent to their areas of specialization. They should further be able to demonstrate an ability to design reading research studies which contribute to the body of knowledge in reading. As this course is intended as the capstone course, it must be taken in the last six hours of graduate work.

697 Special Topics in Reading 1-1.5 hrs.

A variable credit course designed to provide a vehicle for the development and implementation of special topics in the field of reading. The purpose is to provide students with the opportunity to study topical current issues.

698 Resolving Educational Problems in the Schools 1-6 hrs.

With variable topics and variable credit, this course is offered for inservice teachers, supervisors, and administrators who come together 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. Students may repeat this course, providing topics vary. No more than six hours of 698 may be applied toward a graduate degree.

699 Seminar in College Teaching 2-4 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/her 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.

Educational Leadership (EDLD)

Roth, Chairperson; Professors Boles, Stufflebeam, Viall, Weaver; Associate Professors Bunda, Davenport, Dykstra, Munsterman, Sanders, Shaffer, Smidtchens, Warfield.

660 Administration 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 to be offered include:

a. Principles of Community Education
b. Practicum in Community Education
c. Planning of Educational Facilities
d. School Business Management
e. Introduction to Educational Leadership (the first course in any degree program in this department)
f. School Law
g. School Principalship
h. Professional Development Seminar (an interdisciplinary approach to in-service problems)

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. Public Relations
d. Practicum in Leading

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 Contemporary 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
g. Economics of 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
f. Cognitive Measurement
g. Affective Measurement
h. Theories of Evaluation
Independent Studies

Offerings in this area are intended to allow a student in any degree program in this department to demonstrate how well he/she 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 Upperclass 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/her. 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.
720 Specialist Project 2-6 hrs.
725 Doctoral Research Seminar 2-6 hrs.
730 Doctoral Dissertation 15 hrs.
735 Graduate Research 2-10 hrs.

Health, Physical Education, and Recreation (PEGR)

Ray, Chairperson; Professors Dales, Davis, Hoy, Large; Associate Professors Cheatum, Jones, Zabik.

Open to Upperclass and Graduate Students

In-depth study 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. State, national, and international authorities or consultants may be involved. Topics include:

- Hunter Safety
- Physical Education
- Outdoor Education
- Relaxation

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. Students may register for 516 more than once but may not repeat the same issue. Issues include:

- Sex Education
- Nutrition
- Bio Feedback
- Smoking Education
- Consumer Health
- Patient Education
- Drugs and Narcotics
- Cardiovascular Health
- Health Careers
- Venereal Diseases
- Stress Release

520 Physical Activities for Exceptional Children 3 hrs.
Physical and recreational activities and games used in corrective, adaptive, and general physical education programs for special education children.

521 Therapeutic Trends for Exceptional Children 3 hrs.
A study of past, present, and future trends in habilitation and rehabilitation programs for handicapped people.

530 Practicum in Teaching and Coaching 1-2 hrs.
Demonstrations, participation, and evaluation on teaching and coaching fundamentals in selected sports. A graduate student may apply a maximum of four credits from 530 courses toward the Master's Degree Program. Sports include:

- Archery
- Badminton
- Baseball
- Basketball
- Football
- Golf
- Gymnastics
- Ice Hockey
- Judo
- Karate
- Soccer
- Swimming
- Track and Field
- Volleyball
- Wrestling
- Yoga

535 Principles and Problems of Coaching 2 hrs.
Various dimensions and forces affecting coaching are identified and explored including; educational implications of sport and coaching, characteristics of coaches and athletes, vital relationships, motivation, emotions, behavior, discipline, selecting and evaluating personnel, scientific principles and systems of training, the organization and planning of practices and total programs.

540 Movement Education 2 hrs.
A concept in physical education which deals with the way children learn the basic principles of how their bodies move.

550 The Making of American Sport 2 hrs.
An exploration of the historical-philosophical heritage of sport and physical education in the USA. Major persons, events, ideas, and institutions discussed.

560 Administration of Physical Education 2 hrs.
For administrative officers, as well as for teachers and directors of physical education. Includes an in-depth study of representative programs of physical education and a discussion of standards for evaluating such programs.

562 Administration of Athletics 2 hrs.
Discusses administrative procedures and problems connected with athletic programs, including scheduling, facilities, personnel problems, school law and liability, eligibility, finance, safety, and the conduct of athletic events.

572 Recreation for the Aging 2 hrs.
An overview of aging especially as it relates to leisure pursuits and organized recreation.

580 Studies in Athletic Training 2 hrs.

c. Physical Conditioning and Rehabilitation Exercises. Scientific basis for remedial exercises and conditioning programs involving the building of endurance and strength are explained and related to current trends in competitive athletics. Prerequisite: Completion of concurrent enrollment in one PEGR 590, Exercise Physiology, Topic a of PEGR 580, or consent of instructor.

590 Exercise Physiology 2 hrs.
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, 219.

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.

595 Analysis of Movement in Sport 2 hrs.
The study of movement of muscles and the application of kinesiology to physical activity.

598 Readings in Health, Physical Education, and Recreation 1-2 hrs.
Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approval of graduate director in Physical Education.

Open to Graduate Students Only

610 Health Education in the Community 3 hrs.
Consideration of factors that influence health improvement in the community. Prerequisite: Approval of instructor.
612 Organization and Supervision of School and Community Health 3 hrs.
Administrative procedures and review of current trends and programs in health education. Prerequisite: Approval of instructor.

615 Major Chronic Diseases 3 hrs.
Considers prevention, detection, and control of major chronic diseases. Prerequisite: Approval of instructor.

618 Social Epidemiology 3 hrs.
Considers effects of stress manifested as mental, physical, biochemical, and social pathology. Prerequisite: Approval of instructor.

630 Advanced Coaching 1-2 hrs.
Theories of conditioning, training, practice organization, scouting, game and tournament planning, skill analysis and correction, defensive and offensive strategies, safety procedures, purchases and care of equipment, public relations, and promotion specific to each sport. A graduate student may apply a maximum of eight hours credit from PEG 530 and 630 combined toward the master's degree program.

631 Advanced 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 lesson plans, and up-to-date reference sources. Lecture and Activity periods.

641 Physical Education for Preschool, Elementary. and Middle School 2 hrs.
A study of the development 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.

642 Motor Development 2 hrs.
Scientific evidence studied to determine the nature of motor development and its inter-relationships with physical growth, biological maturity, and social development.

643 Psychology of Motor Learning 2 hrs.
An overview of major concepts and conditions important for the learning of motor skills and emphasis on the introduction and explanation of the psychomotor domain.

645 Curriculum Building in HPERS 2 hrs.
A critical analysis of Health, Physical Education, and Recreation programs. This inter-disciplinary approach reflects local, national, and international developments. Construction of a comprehensive program, curricular models, and program evaluation are highlighted.

648 Advanced Studies in Motor Development 1-3 hrs.
A series of advanced seminars dealing with specific topics in motor development. Emphasis will be placed on in-depth study of theories, problems, practices, and issues with appropriate lectures and experiences leading toward the development of a research project or a master's thesis. Topics include:
- Play Theory
- Psychology of Sport

650 Socio-Cultural Foundations in HPERS 2 hrs.
The course is intended to investigate and identify the function of sport in contemporary American society with special emphasis on the relationship of sport to social institutions.

652 Comparative Systems of Physical Education and Sport 2 hrs.
The course will compare physical education and sport systems of selected societies and their relationship to social, political, and cultural foundations.

Deals with modern trends, and with instructional and supervisory problems involved in conducting an effective program of physical education including a critical appraisal of present practices.

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.

668 Advanced Studies in Administration of Physical Education and Athletics 1-3 hrs.
A series of advanced seminars dealing with specific topics in administration of physical education and athletics. Emphasis will be placed on in-depth study of theories, problems, practices, and issues with appropriate lectures and experiences. Topics include:
- Planning Facilities
- Business Procedures
- Public Relations and Promotion
- Administration of High School Athletic Programs
- Problems in Intramural Programs
- Human Relations

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.

680 Advanced Studies in Athletic Training 1-3 hrs.
A series of advanced seminars dealing with specific topics in sports medicine. Emphasis will be placed on in-depth study of theories, problems, practices, and issues with appropriate lectures by physicians and specialists in the field. Professional sports medicine seminars will complement conventional on-campus study. Prerequisite: Completion of 580 series or consent of instructor. Topics include:
- b. Shoulder. Upper and Lower Extremity Injuries
- c. Treatment Modalities and Injury Reconditioning
- d. Administration of an Athletic Training Program

690 Research Procedures in Health, Physical Education, and Recreation 3 hrs.
Research procedures in health, physical education, and recreation and sports introductory principles of scientific inquiry, research methods applicable to these fields, evaluation of published research, and procedures for developing a research design.

691 Psychological Foundations in HPERS 2 hrs.
An overview of the application of psychology to physical education and sport with special emphasis on transcendent experiences in sports and the consciousness of sports.

698 Advanced Studies in Exercise Science 2 hrs.
A series of advanced seminars dealing with specific topics in exercise science. Emphasis will be placed on in-depth study of theories, problems, and issues with appropriate lectures and experiences leading toward the development of a research project or a master's thesis.

Open For Graduate Students Only—Please refer to The Graduate College section for course descriptions (Prerequisite: Approval of graduate director in Physical Education.)

700 Master's Thesis 6 hrs.
710 Independent Research 2-4 hrs.
712 Professional Field Experience 2-12 hrs.
Special Education (SPED)

Eisenbach, Head; Professors Sellin, Wirtz; Associate Professors Hanaford, Nicolau, Patterson; Assistant Professors Baker, Harris, Icbone.

Open to Upperclass and Graduate Students

502 Educational Provisions for the Learning Disabled 3 hrs.
This course is specifically designed for teachers who are interested in identifying and instructing learning disabled children and youth in a regular classroom setting. Emphasis will be placed on (1) identifying the exceptional pupil; (2) developing an educational profile which reveals the learner's strength and weakness; (3) identifying and describing methods and materials utilized in teaching the learning disabled individual. Open to all students except majors in Special Education curricula. Prerequisite: Consent of department.

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. Credit for this course is not applicable toward a graduate degree in Special Education.

530 Education of Exceptional Persons 3 hrs.
This course is primarily concerned with children and youth who are visually, auditorily, 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. Prerequisite: Consent of the department.

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 SPEC 530 and 531 concurrently. Admission to this offering will be determined by the number of placement opportunities available. Graded on a credit/no credit basis. Prerequisite: Consent of the department.

532 Nature and Needs of the Mentally Retarded 4 hrs.
A course especially intended for teachers of the mentally retarded. 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: Consent of the department.

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 persons in his/her curricular area. Diagnostic findings will be translated into individualized educational prescriptions. For majors enrolled in Special Education curricula and to be taken concurrently with SPED 534. Prerequisites: 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 and instruct goals for those evaluated in SPED 533 and translate diagnostic data into meaningful educational programs. Prerequisite: Concurrent enrollment in SPED 533 and consent of department.

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, 531, and faculty approval of the applicant.

542 Introduction of the Severely Impaired 3 hrs.
This course is designed to present knowledge about the observation of severely impaired individuals. Included in this course is knowledge associated with the nature and needs of the severely impaired and educational, community, and parent/family aspects. Participation with severely impaired individuals will be included as an integral part of the course. Consent of department.

543 Nature and Needs of the Crippled and Homebound 4 hrs.
Study of educational, psychological, and therapeutic needs of crippled persons and the role of allied disciplines in meeting these needs. Prerequisite: SPED 530 or equivalent, and consent of the department.

544 Educating the Severely Impaired 3 hrs.
This course consists of the development of skills necessary for educating the severely impaired. Specific skills will be developed in the area of assessment, prescription, implementation, and evaluation of educational programs for the severely impaired. A major component of this experience will be the observation of severely impaired individuals on a one-to-one and on a group basis. This component will be highly interrelated with the skill development component. Consent of department.

560 Educational Provisions for Handicapped Adolescents and Young Adults 3 hrs.
An introductory course to the special education of adolescents and young adults. It will provide the student with knowledge and awareness about the components of secondary and post-school special education programs. Focus will be placed on the physical, intellectual, emotional, and social development of adolescents and young adults. Academic, social, career, and vocational needs and programs for handicapped adolescents and adults will be discussed.

588 Behavior Disorders in School-Aged Learners 3 hrs.
Deals with the psychosocial 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 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.
Programs and Intervention Strategies for the Socially and Emotionally Maladjusted
This course, open only to majors in Special Education curricula, will emphasize techniques and procedures applicable to socially-emotionally maladjusted individuals 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 or equivalent and consent of department.

598 Readings in Special Education 1-4 hrs.
Designed for advanced students interested in independent study. Topics chosen must be approved by the instructor and head of the department. May be repeated for credit. Prerequisite: Consent of department.

Open to Graduate Students Only

620 Advanced Assessment of the Exceptional Learner 2 hrs.
This course will offer experienced special education personnel an opportunity to analyze and utilize formal and informal techniques for evaluating exceptional children and youth. Major emphasis is on the evaluation of assessment instruments and techniques for exceptional children, and on translating diagnostic information into realistic educational plans. Assessment data generated in this course will be used in developing curricular provisions in SPED 621. Prerequisites: Concurrent enrollment in SPED 621 and consent of department.

621 Curriculum Development for Exceptional Learners 2 hrs.
This course is designed to provide experienced special education personnel with knowledge and skill in the conceptualization, construction, adaptation, and evaluation of instructional programs for handicapped learners in both self-contained and resource type programs. Assessment and prescriptive data generated from simulated case studies utilized in SPED 620 will form the basis for the development of curriculum and for the review and selection of specialized methods and materials. Prerequisites: Concurrent enrollment in SPED 620 and consent of department.
622 Development and Assessment of Preprimary Exceptional Children
This course is designed to provide teachers with an in-depth understanding of normal and abnormal developmental patterns of preprimary children (ages 0-5) as related to mental subnormality, neurologic dysfunction, communication disorders, physical and sensory impairments, and emotional disturbance. Emphasis will be placed on developmental assessment and the collecting and reporting of diagnostic information. Prerequisite: Consent of department.

623 Curriculum and Methods for Preprimary Exceptional Children 4 hrs.
This course is designed to provide teachers with skills in translating diagnostic information into a meaningful educational plan for children 0-5 C.A. Emphasis will be placed on situation specific teaching roles as well as curricular and methodologic strategies in preprimary special education. Prerequisite: Consent of department.

630 Clinical Study of Exceptional Persons 2 hrs.
This course is intended to illustrate methods of diagnosing and treating problems of exceptional learners. Students make observations and interpretations of exceptional individuals and carry on remedial work with them. The contributions of other professions will be incorporated. This course is offered on a credit/no credit basis. 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 of 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 Advanced Theory and Practice in Learning Disabilities 4 hrs.
To identify advanced knowledge of the history, theory, and practices related to the education of the learning disabled. An in-depth study will be made of the relationships between learning process deficits and academic underachievement. Alternative strategies for teaching and prevention will be explored. Prerequisite: SPED 533, 534, and consent of department.

635 Counseling Parents of Exceptional Children and Youth 3 hrs.
This course explores the dynamics of parental reactions to their handicapped children and youth. Techniques of dealing with stress situations in the home, in the school, and in the community are developed. The students are given opportunities for contact with parents of exceptional children. Attention will be given to the following topics: Parent's rights, the advocate relationship, parent education, life consultation, and techniques of interviewing and interpretation. Prerequisite: 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 department.

637 Research and Evaluation Techniques in Special Education 4 hrs.
Through various class activities and the use of simulations, students completing this course will acquire skills and knowledge of research and evaluation in the areas of: the role of research and evaluation in special education, the use of the scientific approach, research and evaluation design, observation and measurement, statistical analysis, interpretation of research and evaluation reports, and report writing. Prerequisite: Consent of 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 the Handicapped 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.

641 Supervision of Special Education Programs and Services 3 hrs.
This course is designed to provide the experienced special educator with specific knowledges and skills necessary for supervising personnel who are providing direct services to exceptional learners. Attention will be given to essential program and personnel factors. Emphasis will be given to those procedures utilized in selecting personnel, identifying resources for program development and support, facilitating change in teaching behavior, and evaluating the effectiveness of program operations and personnel. To demonstrate the competencies in this course, the student will conduct an interview with a supervisor in the field and prepare a written and oral report. Successful completion of a comprehensive examination over terms and concepts is also required. Prerequisite: Consent of the department.

642 Developing Techniques for In-Service Education 2 hrs.
Designed to inform students of the issues and problems involved in developing in-service education and to provide students an opportunity to design and present an in-service program for critique. Determining the needs of a given target population and an examination of delivery systems currently in use will be emphasized.

643 Legal and Financial Aspects of Special Education 3 hrs.
The current legislative and financial base for special education (national, state, and local levels) will be examined and utilized in simulation and reality situations for the development and modification of special education programs. This will include the basic concept of budgeting of resources and expenditures. Prerequisite: Consent of department.

650 Seminar on Special Education in Higher Education 3 hrs.
Analyzes issues and problems related to departmental, college and university governance, focuses on procedures utilized in recruitment, selection and employment of faculty, emphasizes the significance of evaluation and accountability of curricula, faculty, administrators, and students, examines trends and issues in the development of professional preparation in special education and ancillary areas, and analyzes the manpower spectrum and the diversity of collegiate special education programs and services offered in the United States and foreign countries. Prerequisite: Consent of department.

656 Advanced Educational Foundations of Special Education 3 hrs.
This course is provided for students who have acquired extensive professional preparation and broad experience in the education of exceptional persons. An in-depth knowledge of etiologies and characteristics of exceptionalities will be developed. Students will be required to select one area of exceptionality and complete a comprehensive and exhaustive review of the literature. Attention will be given to historical, social, cultural, economic, and psychological factors which have influenced or may influence the roles, functions, and structure of public schools, institutions, and agencies, and the programs and services provided for the handicapped. To demonstrate competency in this course, students will be required to teach undergraduates, prepare and give oral presentations, and successfully complete a comprehensive written examination. Prerequisite: Consent of department.

659 Application of Learning Theories to Educational Programming for Exceptional Learners 2 hrs.
This course will offer an overview of theories of learning as they apply to exceptional learners. An in-depth analysis of selected theories will be conducted in order to compare and contrast the relationships of each to the development of long-term goals for handicapped learners. 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.

675 Internship in College Teaching 3 hrs.
Designed specifically for students officially admitted to the doctoral program in Special Education who are required to demonstrate ability to teach in a formal and informal setting. The student will be expected to evidence ability to plan and execute instructional tasks, develop and apply appropriate evaluative techniques, and interpret students' performances. Competence will be demonstrated in academic advising, supervising undergraduate students enrolled in practicum, and directing students engaged in independent study. Prerequisite: Consent of department.
Open to Graduate Students Only—Please refer to The Graduate College section for course descriptions.

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<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
<td>710 Independent Research</td>
<td>2-6 hrs.</td>
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<tr>
<td>712 Professional Field Experience</td>
<td>2-12 hrs.</td>
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<tr>
<td>730 Doctoral Dissertation</td>
<td>15 hrs.</td>
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College of Fine Arts

ROBERT W. HOLMES,
Dean
ROBERT H. LUSCOMBE,
Associate Dean

Graduate Offerings:
Art
Dance
Music
Theatre
Art (ART)

Professors Engstrom, Meyer, Robbert; Associate Professors Argyropoulos, Carney, Deluca, Frattallone, Gammon, Johnston, Keaveny, King, Link, Lowder, Meredith, Moulton, Rhodes, Rizzolo; Assistant Professors Chressantis, Dull, Mason, Mohr, Naftal, Neu.

Open to Upperclass 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 or equivalent for Art majors, 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. Graded on a Credit/No Credit basis. Prerequisite: Junior Art major.

529 Advanced Ceramics 3 hrs.
Advanced work in ceramics including glaze calculation. Prerequisite: ART 430 or equivalent experience.

530 Advanced Ceramics 1-6 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. Emphasis on bronze and aluminum casting and related techniques. Prerequisites: ART 340, 431, or equivalent experience. Repeatable for credit.

534 Textiles 3 hrs.
Advanced work in textile design. Prerequisites: ART 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.
Advanced work in jewelry processes. Prerequisite: ART 438 or equivalent experience. Repeatable for credit.

539 Metalsmithing 3 hrs.
Advanced work in metalsmithing. Prerequisite: ART 439 or equivalent experience. Repeatable for credit.

540 Painting IV 3 hrs.
Advanced painting. Prerequisite: ART 410 (or concurrently), 440, or equivalent experience. Repeatable for credit.

541 Printmaking Workshop 1-6 hrs.
An advanced seminar for qualified undergraduates to engage in successful exploration of Printmaking media appropriate to each art student’s esthetic needs. Repeatable for credit. Prerequisite: Any 400-level Printmaking course.

542 Watercolor 3 hrs.
Continuation of advanced water color techniques with emphasis on experimentation. Prerequisites: ART 240, 442, or equivalent experience. Repeatable for credit.

545 Graphic Design 3 hrs.
Advanced work in graphic design. Prerequisite: ART 445 or equivalent experience. Repeatable for credit.

548 Photography IV 3-6 hrs.
Professional development through research in advanced projects. Prerequisite: ART 448 or equivalent experience. Repeatable for credit.

552 Preparation for Art Teaching 3 hrs.
A course designed to investigate: the current problems and issues on the social scene which affect 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. Prerequisite: Art 452 and art major status.

553 Independent Studies in Art Education 1-6 hrs.
An arranged elective course in which the student investigates and researches a problem, a project, or trends in art education. (Not to be taken in place of required art education courses.) Prerequisites: 252, 452, 552, and permission of the art education chairperson. This course is open to graduate and non-degree level students.

560 Arts Education for the Elementary Teacher 3 hrs.
A studio course designed for the elementary classroom teacher to provide experiences in qualitative elementary arts and integrated arts programming in the elementary public school. Repeatable for credit.

581 History of Ancient Art 3 hrs.
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 3 hrs.
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, Titan, Van Eyck, Brueghel, and Durer. 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 (Durer and Rembrandt). 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, Saint-Gaudens, Zorach, Marin, Pollock and recent developments. 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 A Survey of World 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 3 hrs.
Major developments in architecture since 1750 with emphasis on late 19th or 20th century developments in domestic and commercial architecture and city planning in the West and in Asia. Special consideration given the works and influences of Wright, Le Corbusier, and Mies 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.

619 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 or the equivalent; 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. Graded on a Credit/No Credit basis. Prerequisite: Art majors status.

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.

639 Advanced Metalsmithing 1-6 hrs.
Graduate level work in hand-hammered metal. Prerequisite: ART 539. Repeatable for credit.

640 Advanced Painting 1-6 hrs.
Graduate level work in painting. Prerequisite: ART 540. Repeatable for credit.

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.

648 Advanced Photography 1-6 hrs.
Graduate level work in photography. Prerequisite: ART 548 or equivalent experience. 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/her in his/her 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 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.

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.

Dance (DANC)

Hetherington, Chairperson; Associate Professors Cornish, Gamble, Stillwell; Assistant Professor McCray; Instructor Mills.

Open to Upperclass 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.

510 Trends in Dance 3 hrs.
Designed to survey Dance in its multi-faceted dimension. A brief survey of socio-cultural factors affecting dance will provide a base for an analysis and prediction of the strength of the trends in dance and where they may be directed. Prerequisite: Consent of Graduate Adviser.

525 Special Studies in Dance History 2 hrs.
Studies in dance history not offered as separate courses. Examples of topics for study include the following: Afro-American Dance; Contemporary Dance in the 20th Century; Classic and Romantic Ballet; Vaudeville, Broadway, and the Movies; Dance in the East and Far East; Survey of Dance as Social Comment.

527 Partnering 1 hr.
The training of ballet dancers in the art of Pas de Deux. Women in the class must have had background in pointe work. Prerequisite: Consent of adviser.

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 creating 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. Prerequisite: DANC 328 or consent of adviser.

540 Repertory Company Class 1 hr.
Designed for the dance student at the professional level. An advanced technique in ensemble performing is necessary. All members of the Western Michigan Repertory Dance Company shall take this as a required
technique class. Repeatable for credit. Prerequisite: Western Michigan Repertory Dance Company members or consent of Company Director.

542 Organization and Administration of Dance 3 hrs.
A course designed to provide an understanding of existing structures in dance departments and divisions with an analysis of the styles of administration unique to each. A study will be made of the implementation of budget, curriculum planning, recruitment, policy making, intra-university functioning, and personnel consideration.

548 Dance and the Related Arts 3 hrs.
Related study of cross-sections of art disciplines at various points in the historical development of man. Assumes prior knowledge of historical and philosophical development of at least one of the disciplines. Prerequisite: DANC 500, 525, or consent of adviser.

550 Western Michigan Repertory Dance Company 2-3 hrs.
The Company is a major performing ensemble which provides master classes, lecture-demonstrations, and concerts in various dance styles on and off campus. The nature of these activities requires that members show proficiency in the areas of performance, improvisation, teaching, public speaking, and composition. Membership involves a series of auditions and is open only to members of officially recognized department ensembles. Members shall attend DANC 540. May be repeated for credit. Prerequisite: By audition only.

570 Ballet Company Class 2-4 hrs.
Designed for the ballet student at the professional level. An advanced technique and proficiency in performing is necessary. All dancers who are members of the University Ballet Theatre shall take this as a required technique class. May be repeated for credit. Prerequisite: By audition or consent of Ballet Company Director.

580 University Ballet Theatre Company 2-3 hrs.
Comprised of members of the performing ballet group of the Department of Dance. Dancers will have experience performing and rehearsing in a professional company environment. Members of the company will be selected by audition or permission of the Ballet Company Director and shall attend DANC 570. Repeatable for credit. Prerequisite: By audition or consent of Ballet Company Director.

582 Graduating Presentation 1-3 hrs.
Preparation and presentation of an advanced project in dance; to be either a written paper or the performance or choreography of a major dance work. An oral examination is included. To be taken by B.F.A. candidates in their senior year. Prerequisite: Consent of adviser.

588 Dance Production 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 are considered.

598 Readings in Dance 1-4 hrs.
Advanced students with good academic standing may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approved application required.

599 Non-reading Independent Study in Dance 1 hr.
Advanced students with good standing may elect to pursue independently the study of some area of dance through the creative process. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approved application required.

Open to Graduate Students Only

600 Practicum 2 hrs.
An in-depth experience in the area of dance technique, dance performance, dance production, or choreography at a high level of proficiency not normally available as a separate course. Included is the possible study off campus with a professional dancer in ballet, jazz, or contemporary dance within a continuous period of time equal to one-third of a semester. May be repeated for credit. Prerequisite: Consent of graduate adviser.

602 Jazz Dance Ensemble 2 hrs.
A course designed to give the advanced dance student an intensive experience in the maintenance of proficient technique and ensemble performance in the jazz style. Four hours are required for the M.A. candidate who takes jazz dance as his/her ensemble choice. May be repeated for credit. Prerequisite: By performance audition.

605 Dance Management 2 hrs.
Studies in specialized areas of management as they relate to management practices for dance companies, performances, and grantsmanship. Students will experience application of these practices. Prerequisite: Consent of Graduate Adviser.

616 Ballet Ensemble 2 hrs.
A course designed to give the advanced dance student an intensive experience in the maintenance of proficient technique and ensemble performance in the classical ballet style. Four hours are required for the M.A. candidate who takes ballet as his/her ensemble choice. May be repeated for credit. Prerequisite: By performance audition.

620 Seminar in Dance Research and Analysis 2 hrs.
A study of current trends in the areas of dance analysis and criticism, as well as a survey of research in dance. Class assignments, group and individual, are designed to prepare the student for work in his/her capstone experience—DANC 700, Master’s Thesis.

623 Contemporary Dance Ensemble 2 hrs.
A course designed to give the advanced dance student an intensive experience in the maintenance of proficient technique and ensemble performance in the contemporary dance form. Four hours are required for the M.A. candidate who takes contemporary dance as his/her ensemble choice. May be repeated for credit. Prerequisite: By performance audition.

625 Special Studies in Choreography 2-3 hrs.
Selective study within a broad range of aspects of choreography with emphasis on concepts, theory, and advanced skills. Prerequisite: Consent of graduate adviser. Possible topics include: a. Choreography for the Musical Theatre b. Choreography for the Opera c. Multi-Media Choreography d. Choreography for the Unusual Architectural Environment e. Improvisational Approach to Staging and Composition f. Choreography for New Sound Structures

640 Dance in Elementary Education 2 hrs.
A study of the rhythmic movement needs of the elementary child with consideration of theory, materials, and techniques necessary for creative teaching.

642 College Teaching of Dance 3 hrs.
Theories and practices in dance Pedagogy and practical experiences in the teaching of college dance. Course development, teaching methods and materials, and evaluative tools will be explored. Prerequisite: Consent of Graduate Adviser.

680 Advanced Studies in Dance 1-4 hrs.
Advanced study in areas of dance theory, dance technique, and dance education methodology may be offered as independent studies, classes, or workshops at the discretion of the instructor. Prerequisite: Consent of graduate adviser.

688 Special Studies in Dance Production 2 hrs.
Selective study within a broad range of aspects of dance production with emphasis on theory and practical laboratory experience in conjunction with dance performance. May be repeated for credit. Prerequisite: DANC 588 or consent of graduate adviser. Possible topics include: Costuming for Dance Lighting for Dance Dance Management

690 Graduate Recital 6 hrs.
An advanced choreographic project, culminating in the performance of a major dance work. A portfolio is required which includes production designs, musical notation, movement notation, and rationale. Both an oral examination and the project evaluation are conducted by a departmental reviewing committee. Prerequisite: Consent of graduate adviser.

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

700 Master's Thesis 6 hrs.
Music (MUS)

Music (MUS) Open to Upperclass and Graduate Students

500 Applied Music 1-2 hrs.
Private lessons for the graduate student in a non-major area of performance.

501 Master Class 2 hrs.
The study of literature, performance practices, and techniques for a specified musical medium (instrument or voice). Individual performance assignments will be made appropriate to each student's level of accomplishment. Class meetings may vary from small groups of students with common performance levels to meetings for the entire class for the purpose of dealing with materials and techniques common to all performers. May be repeated for credit.

512 New Music Ensemble 1 hr.
A performing organization which is committed to the performance of music and mixed media works in the avant-garde style. The ensemble is open to vocalists and instrumentalists on an audition basis.

514 Instrumental Chamber Music 1 hr.
Special ensembles formed to perform standard instrumental chamber music works. Ensembles may include a variety of combinations, i.e., string quartets, woodwind quintets, brass quintets, percussion ensembles, piano trios, etc. Credit will be given only if a sufficient rehearsal/performance schedule warrants.

516 Music Theatre Practicum 1 hr.
A production experience in music theatre. Each semester culminates in an opera or musical comedy production. Open to singers, actors, accompanists, instrumentalists, and persons interested in production techniques. Admission by audition or permission of the instructor. May be repeated for credit.

517 Collegium Musicum 1 hr.
Performance of early Western Music. Open to all students of the University. Additional transcription, arranging, editing, and conducting of early music is required of enrolled 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.

519 Vocal Chamber Ensemble 1 hr.
Small vocal ensemble(s) which emphasize research and limited performance of specialized repertoire of one or various periods of music. Admission by permission of the instructor.

520 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.

521 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 Research in the Psychology of Music 2 hrs.
Development and employment of research methods and techniques applied to the psychology of music. Experimental projects will be required in areas dealing with music/or musical behavior. Prerequisite: MUS 380.

544 Music Education Materials: Variable Topics 2 hrs.
A study of the theoretical bases for, and practice in, analyzing and evaluating music for use in music education programs. This course may be repeated for a maximum of four credits.

545 Music Theatre Productions 2 hrs.
A course in the techniques of acting, singing, dancing, and producing of musical theatre. Students will be divided into small groups, each group having been assigned to produce scenes or acts from the standard musical theatre repertory. Assignments in these groups will include choreographing, blocking action, directing the music, performing, stagecraft, and other activities essential to the production. Prerequisite: Junior standing.

546 Improvisation 2 hrs.
A study of the contrapuntal techniques of the 18th, 19th, and 20th centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: 261 with grade of C or better.

547 Counterpoint 2 hrs.
A study of the contrapuntal techniques of the 18th, 19th, and 20th centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: 261 with grade of C or better.

548 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.

549 Advanced Composition 2 hrs.
A continuation of MUS 562.

550 Advanced Composition 2 hrs.
A continuation of MUS 562.

551 Advanced Composition 2 hrs.
A study and directed application of the harmonic, melodic, and rhythmic resources in jazz to improvisatory techniques. Emphasis on the blues and standard jazz compositions. All students are expected to perform on an instrument as a normative part of the course. Prerequisite: Music 161 with the grade of C or better.

552 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.

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557 Counterpoint 2 hrs.
A study of the contrapuntal techniques of the 18th, 19th, and 20th centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: 261 with grade of C or better.

558 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.

559 Advanced Composition 2 hrs.
A continuation of MUS 562.

560 Jazz Improvisation 2 hrs.
A study and directed application of the harmonic, melodic, and rhythmic resources in jazz to improvisatory techniques. Emphasis on the blues and standard jazz compositions. All students are expected to perform on an instrument as a normative part of the course. Prerequisite: Music 161 with the grade of C or better.

561 Improvisation 2 hrs.
A study of the contrapuntal techniques of the 18th, 19th, and 20th centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: 261 with grade of C or better.

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.

564 Jazz Improvisation 2 hrs.
A study and directed application of the harmonic, melodic, and rhythmic resources in jazz to improvisatory techniques. Emphasis on the blues and standard jazz compositions. All students are expected to perform on an instrument as a normative part of the course. Prerequisite: Music 161 with the grade of C or better.

565 Jazz Improvisation 2 hrs.
A study and directed application of the harmonic, melodic, and rhythmic resources in jazz to improvisatory techniques. Emphasis on the blues and standard jazz compositions. All students are expected to perform on an instrument as a normative part of the course. Prerequisite: Music 161 with the grade of C or better.

566 Musical Acoustics 3 hrs.
A course designed for the music student. Discussion as well as laboratory demonstrations of such principles as: simple vibrating systems; waves and wave propagation; complex vibrations; resonance, intensity and loudness levels; tone quality; frequency and pitch; intervals and scales; tuning and temperament; auditorium and room acoustics; and psycho-acoustics.

567 Orchestration 2 hrs.
A study of the characteristics of instruments, and of arranging for the various individual choirs, for combinations of choirs, and for full orchestra. Prerequisite: MUS 261.

568 Orchestration 2 hrs.
A continuation of MUS 567. Prerequisite: MUS 567.

569 Orchestration 2 hrs.
A study of the contrapuntal techniques of the 18th, 19th, and 20th centuries. Written assignments are closely correlated with the contrapuntal styles of significant composers. Prerequisite: 261 with grade of C or better.

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.
College of Fine Arts

571 Introduction to Musicology 3 hrs.
A continuation of MUS 570.

572 Baroque Music (1600-1750) 3 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. Prerequisite: 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) 3 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.

581 Choral Music Literature 3 hrs.
A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

585 Advanced Jazz Studies 3 hrs.
Analysis and application, through composition and performance, of advanced jazz techniques. Areas of study include analysis of contemporary jazz styles, solo transcriptions, chord voicing and modern inversion sequences, harmonic substitution patterns, aspects of complex scale formations, advanced rhythmic techniques, articulation and nuance, and advanced scoring techniques. Students will be required to compose and arrange several compositions in various styles, develop the improvisational skills needed to meet the demands of each composition, and subsequently organize the musicians necessary to rehearse the music for a recording session and live performance. This course is repeatable for credit. Prerequisite: Music 210, 218, 565, and 569, all with a grade of C or better.

590 Studies in Pedagogy 1-4 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.

593 Piano Technology 1 hr.
An introduction to piano technology in which various aspects of the technician's art are investigated. Important topics covered include mechanics of the musical scale, art of tuning in equal temperament, and construction of modern grand and vertical pianos. The course is designed to give the student valuable insights into the field of piano technology in order that he or she might intelligently purchase and care for this instrument. Not intended to train tuners.

597 Projects in Music 1-4 hrs.
A program of independent study to provide the unusually qualified music 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 project must come from the student and must be approved by the faculty member proposed to supervise the study. Prerequisite: Application approved by Department.

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

600 Applied Music 1-4 hrs.
Private lessons for the graduate student in the major performance area. Includes conducting.

610 Introduction to Research in Music 3 hrs.
A course in the general methods and techniques of research in the field of music. Students will complete a comprehensive bibliography, an annotated bibliography, and a research paper in the area of concentration of their graduate program of study.

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.

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 or her, 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 Countertpoint 2 hrs.
Contrapuntal techniques of the 16th, 17th, 18th, 19th, and 20th centuries. Written assignments are closely correlated with analysis of the contrapuntal styles of significant composers. May be repeated for credit. Prerequisite: MUS 561.

661 Modal Countertpoint 2 hrs.
A study of modal counterpoint as exemplified by the composers of the 16th century. Practical application through written assignments in the style of the period. Prerequisite: Graduate standing in music.

662 Seminar in Composition 2 hrs.
The completion of an original composition of larger scope in any medium, accompanied by analysis of advanced works and reading assignments. May be repeated for credit.

664 Form in Music 2 hrs.
A survey of the choral and instrumental music of the Baroque masters from a theoretical, historical, and performance point of view. A continuation of MUS 570.

678 Chamber Music Literature 2 hrs.
A survey of chamber music literature of the Classic and Romantic periods.

682 Philosophies of Music Education 2 hrs.
A program of independent study to provide the unusually qualified music 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 project must come from the student and must be approved by the faculty member proposed to supervise the study. Prerequisite: Application approved by Department.

697 Projects in Music 1-4 hrs.
A program of independent study to provide the unusually qualified music 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 project must come from the student and must be approved by the faculty member proposed to supervise the study. Prerequisite: Application approved by Department.
655 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 projects for full orchestra, solo and orchestra, and chorus and orchestra. Analysis of the orchestral techniques of 20th century composers. Projects employing the orchestral techniques of the avant-garde. May be repeated for credit. Prerequisite: MUS 650.

670 Seminar in Musicology 1 hr.

Research projects from all areas of the history of music. Each student will present his or her 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 repeated for credit when dealing with a different composer.

680 Seminar in Music Therapy 2 hrs.

A course designed to permit the student to explore selected areas of music therapy, i.e., therapeutic techniques, evaluation procedures, or the role of music therapy in a variety of settings (hospital, school, community). A project is required, which will be subject to group analysis and discussion. The course may be repeated for credit.

681 Research in Musical Behavior 2 hrs.

Development and employment of research methods and techniques to the psychology of music and/or music education. Students enrolled in this course will be responsible for an experimental research project which, in the case of music education students, will satisfy the “terminal project” requirement (MUS 691) or, in the case of music therapy students, will provide the data basis for the required MUS 700, Master's Thesis. Prerequisite: MUS 610 or ED 610.

689 Music Teaching Practicum 2 hrs.

A course for teaching assistants which provides for faculty instruction, observation, and supervision in the area of the teaching assignment. The course shall be taken during the first semester of appointment.

690 Graduate Recital 2 hrs.

Presentation of a full-length recital in the student’s area of concentration (applied music or composition). When this course is the culminating project for the master’s degree, an oral examination on the recital materials and related areas is an integral part of the requirement.

691 Special Project in Music Education 2 hrs.

A research project in the area of the teaching of music. The nature of the special project is to be determined in consultation with the Graduate Adviser and appropriate members of the graduate faculty. Projects must be approved prior to registration. When this course is the culminating project for the master's degree, an oral examination on the project and related areas is an integral part of the requirements. May be repeated for credit.

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. Three or more credits requires 60 minutes per week of instruction and necessary practice. May be repeated for credit. Includes private conducting study.

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.

717 Professional Field Experience 2-12 hrs.

Theatre (THEA)

Professor Grandstaff; Associate Professors Fleischhacker, Karsten, L. Stillwell, V. Stillwell.

500 Studies in Theatre: Variable Topics Variable

Selected topics within the broad range of theatre. Emphasis upon concepts, theory, and advanced skills. Repeatable for credit under a different title. Examples of topics for study include:

- Advanced Directing
- Advanced Make-up
- Advanced Technical Theatre
- Design for the Theatre
- Developmental Theatre Service
- Informal Drama for Jr./Sr. High
- Story Theatre
- Theatre Administration
- Theatre Production
- Touring Theatre

535 Costume Studio 3 hrs.

Study of the design and creation of costume accessories such as hats, jewelry, and masks. Prerequisites: THEA 336 or consent of instructor. Students are required to supply their own materials.

540 Acting Studio 3 hrs.

An advanced course in the art of acting with emphasis on the individual needs of the student actor. Repeatable for credit up to six hours. Prerequisite: Consent on instructor. Lab fee: Approx. $5.00.

550 Musical Theatre Production 3 hrs.

Focuses on concepts, methods, organization, and communication principles useful to directors, musical directors, choreographers in creating effective musical theatre production, particularly in the school and community situation. Team-taught by instructors from music, dance, and theatre. Prerequisite: THEA 255 or consent of instructor.

562 Teaching of Theatre 3 hrs.

Designed to familiarize the prospective middle and high school teacher with philosophies, methods, and creative procedures for teaching and producing theatre. Emphasis is placed upon qualitative theatre programming in the middle and secondary school. Prerequisite: At least 15 hours of Theatre or consent of instructor.

570 Development of Theatre Art 3 hrs.

A survey of the development of theatre art and its relationship to the concurrent development in other arts. Recommended for students considering work in the fine arts. Prerequisite: THEA 370 or consent of instructor.

620 Seminar in Theatre: Variable Topics 2, 4, 6 hrs.

Study of interrelated aspects of historical and contemporary theatre. Various topics. See schedule of classes. Prerequisite: variable.

628 Summer Theatre 2, 4, 6 hrs.

A series of workshops providing students with opportunities to concentrate on various activities of theatre production. Study of a specific topic is integrated with practical experience in a laboratory approach. Some workshops may culminate in performances. Students may enroll for one or more workshops depending on individual needs, interests, and
College of Fine Arts

schedules. Number of credits and length of workshop determined by focus of topic studies. See Summer Schedule of Classes for specific offerings. Consult Schedule of Classes for prerequisites. Topics may include:

a. Acting
b. Costuming
c. Design
d. Directing
e. Improvisation
f. Lighting and Sound
g. Make-up
h. Management
i. Technical Theatre
College of General Studies

Humanities Area (GHUM)

P. Adams, Chairperson; Assistant Professors Dooley, TenHarmsel.

501 Humanities Workshop: Variable Topics  1-3 hrs.

This course is designed to permit the granting of appropriate credit for participation in workshops and institutes sponsored by the Humanities Area of the College of General Studies. Course may be repeated for credit upon a change in topic, up to a maximum of six hours.
College of Health and Human Services

WILLIAM A. BURIAN,
Dean

BARBARA D. MARKS,
Associate Dean

Graduate Offerings:
Health and Human Services
Blind Rehabilitation
Gerontology Specialization
Occupational Therapy
Social Work
Speech Pathology and Audiology
Specialty Program in Alcohol and Drug Abuse
Health and Human Services (HHS)

511 The Health System and Its Environment 3 hrs.
This course provides a descriptive analysis of the organization of the health system. The student who participates can expect to gain an understanding of the structure of health services as well as the processes of operation of the service system and the ways in which consumers make use of the system. The analysis focuses on the interplay of forces within the system as well as between the system and its environment.

512 Health Resources Administration 3 hrs.
This course is an introduction to principles and problems of health resources administration. The course focuses on two major areas. First, in a general introduction concerning the structure of the financing of health services, the course explores public and private mechanisms, insurance, and other financing plans. Second, the course examines the principles of financial administration for health services in the institutional and private-practice setting. In this context major current issues and problems such as cost containment in health financing are analyzed.

513 Special Studies in Health Care Organization and Delivery Variable
This course deals with intensive analysis of the organization, design, and delivery of health care services in specialized areas. The specialized areas cover long-term, mental health and mental retardation services, and group medical practice.

514 Basic Principles and Organization of Health Planning 3 hrs.
This course is an introduction to the principles and methods of planning in the health system. It includes a descriptive analysis of the significance of planning effective health care services, alternative planning frameworks, and technical approaches to the planning process. In addition the course surveys the history of planning in the health systems as well as the current structure arrangements for carrying out planning in the health arena both at the macro and micro levels.

515 Administrative Functions in the Health Care Setting 3 hrs.
This course focuses on the knowledge and skills necessary for the major administrative functions in health organizations. These include goal setting, decision making, personnel management, data processing, service design, and general principles of financial management.

530 Clinical Theory for Health and Human Services 1-4 hrs.
This course covers selected theories which form the foundation for health and human service practice in specialized areas. Students are expected to master the content as a basis for building foundation knowledge for clinical practice. Theory of environmental health, systems theory for the health setting, theories of substance abuse for nursing and medical practice, and community health theory are among the possible areas of study. The specific topics are announced with each semester offering. Prerequisite: Consent of instructor.

560 Clinical Practice in Selected Health and Human Service Areas 1-4 hrs.
This course covers variable topics in clinical health and human service practice. It is a skilled development course which helps students to become proficient in specific techniques and procedures related to patient care or client service. Clinical applications of biofeedback, clinical practice in genetic counseling, the role of the health team in clinical practice, the patient and clinical laboratory services, basic clinical skills for the substance abuse setting, and community health education practice are among the possible areas of studies. The specific areas are announced with each semester. Prerequisite: Consent of instructor.

561 Problem Solving in Health and Human Service Organizations 1-4 hrs.
This seminar covers variable topics relating to problem solving in health and human services. It is a skill development course which helps students to become proficient with theoretical contracts and specific procedures for application in the health and human services system. Technology for health planning, the health system and its environment, organization of health practice teams, and financial problem solving in the health agency are among the topics covered. The specific topics to be discussed are announced with each semester offering. Prerequisite: Consent of instructor.

662 Program Planning & Development in Gerontology 3 hrs.
This seminar in the gerontology specialization program will explore the process of program planning and development through meetings with national, state, and local funding agencies and meetings with service providers in various kinds of programs for older persons throughout the region. Prerequisite: Permission of Gerontology specialization program adviser.

680 Multidisciplinary Seminar in Gerontology 3 hrs.
A multidisciplinary seminar in gerontology, drawing upon staff from various academic and professional departments on the campus as well as from practitioners in the community. Course work and readings will deal with various theoretical and practical aspects of gerontology including policy formulation and implementation with academic emphasis on contributions of various academic fields to the understanding of aging.

Blind Rehabilitation (BLRH)

Blasch, Chairperson; Associate Professors K. Suterko, Assistant Professors LaDue, Lennon, Widerberg.

Open to Uppereclass and Graduate Students

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.
A course designed to develop a basic knowledge of the braille literary code, including reading and writing, and to gain familiarity with other methods of communication used by visually impaired persons.

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 techniques of instruction in 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 and interpretation of sensory information by severely visually impaired individuals.

595 Introduction to Methods of Independent Mobility for The Blind 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.

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 Ciecucency 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 Principles of Rehabilitation Teaching 3 hrs.
An overview of the field of rehabilitation teaching, with particular
emphasis upon skills in human relationships which are essential in teaching the adult blind. 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.

694 Inter-Professional Seminar Regarding Blind Multi-handicapped Persons 1 hr.
Interdisciplinary approach to the study of multi-handicapped conditions in which blindness is a common denominator.

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 students in various environments. He/She also aids the Master Orienter in working with multi-handicapped 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.

Occupational Therapy (OT)

Rider, Chairperson; Professor Tyndall; Associate Professor Lewis; Assistant Professors Anderson, Bush, Cooper, Edwards, Lukens, Richardson, Smith.

Open to Upperclass and Graduate Students

510 Arts and Crafts for Rehabilitation Teachers of the Blind 2 hrs.
Includes methods and techniques of teaching needlework, ceramics, and leatherwork to visually handicapped adults.

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 of 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 3 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. The student will develop a model of practice of occupational therapy services using the skills of administration such as: planning, organizing, directing, and controlling.

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

686 Seminar in Occupational Therapy 3 hrs.
This course is designed to provide an opportunity for the student to explore selected areas of occupational therapy, e.g., identifying the concept and role of occupational therapy in various settings, utilizing different therapeutic approaches, developing problem-solving techniques, improving communication skills, and practicing evaluation procedures. A major project is required. This course may be taken more than once. Prerequisite: Consent of graduate adviser.

697 Supervisory and Teaching Experience in Occupational Therapy 3 hrs.
This course focuses on the development of supervisory and teaching skills for occupational therapists through faculty-directed participation in supervisory and teaching activities in selected occupational therapy areas. Specific learning objectives and expectations for students are arranged with participating faculty. Prerequisites: OT 686 or concurrent; OT 712, and consent of graduate adviser and participating faculty member.

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.

Social Work (SWRK)

Professors Burian, Burns, Flynn, Kramer, Wijnberg; Associate Professors Barsow, Braithwaite, Dadlani, Lish; Assistant Professors Cooney, Fink, Greene, Jones, Joslyn, Kirk, Mathews, McCaslin, Phillips, Reid, Thompson, Vassil, Wolk.

All Social Work courses are graded on a Credit/No Credit basis for students in the M.S.W. program. All other students should register for regular credit.

SOCIAL POLICY

Open to Upperclass and Graduate Students

512 Social Policy and Service Delivery in Selected Problem Areas 3 hrs.
Intensive study in selected fields of service, specializations, and social problem areas. Attention is focused on learning about the major social policy issues associated with the service or problem area. Specific topics will be announced each semester. Prerequisite: Consent of instructor.

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 and individual case situations. Prerequisite: Consent of instructor.

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 therapist, guidance counselors, teachers, etc. May not be used as credit towards the M.S.W. degree.

Open to Graduate Students Only

This first course in social welfare policy in the graduate curriculum explores and identifies the social, political, economic, historical, and philosophical foundations of American social welfare. Emphasis is given to the social conditions of poverty and racism and the structure of social services, particularly as developed through social legislation. The disciplined study of social welfare policy is pursued by the use of a range of explicitly stated analytic frameworks in which alternative choices in social policy and social provisions are made visible. Prerequisite: 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.

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 or consent of instructor.

SOCIAL AND BEHAVIORAL THEORY

Open to Upperclass and Graduate Students

533 Dynamics of Race and Culture for Social Work Practice 3 hrs. Focus is upon ethnic/racial groups who are among social welfare consumer groups and social work clientele. Racial/cultural characteristics, group strengths and weaknesses, group priorities, and experiences in the context of social welfare and social work will be examined. Implications of ethnic factors for social work practice, social planning, and social work education will be explored. Prerequisite: Consent of instructor.

Open to Graduate Students Only

630 Social Change Theory and Community Analysis 3 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 Individual Growth and Development 3 hrs. This course will focus on an understanding of personality, individual functioning, and change throughout the life cycle. Specific emphasis will be placed on biological substrates, the person's emotional life, and how these factors interrelate with the socialization process and environmental variations. Ethnic and racial variables will be explored as they affect personality development. Theoretical approaches may include psychoanalytic ego psychology, cognitive functioning, and learning theories. Concurrent and interrelated with these theories is a focus on "social role concepts" as they affect a social work case assessment and practice interventions. Prerequisite: Consent of instructor.

632 Organizational Theory for Human Service Management 3 hrs. This course is designed to provide the student with knowledge of and skill in the analysis of organizational operations in the human service agency. The course content covers a general review of major theories of organization with intensive work on the open systems strategy. In addition, selected special areas such as personnel management and interagency relations are covered. Prerequisite: SWRK 630 or consent of instructor.

634 Social Welfare Economics and Politics 3 hrs. An intensive study of the tension between "rational" planning, political decision making, and the resolution of conflicts between assessment of social welfare needs and programs derived from planning, and the social policies and resource allocations which interest influential and electorate with the national, state, and local political decision making processes. Prerequisite: SWRK 630 or consent of instructor.

636 Family and Small Group Behavior 3 hrs. This course is intended to equip the student with theoretical frameworks basic to understanding the functioning of majority and minority families and other small groups. The approaches employed will include family systems and family developmental theories and the research and theory on small group dynamics. Emphasis will be placed on the utilization of these frameworks in the analysis and appraisal of social work practice problems. Prerequisite: SWRK 631 or consent of instructor.

638 Psychopathology and Social Deviance as Related to Social Work Practice 3 hrs. This course focuses on the understanding of psychopathology and social deviance with specific emphasis on the interface of biological, psychological, and socio-cultural variables. Emphasis will be placed upon social work assessment and practice interventions. The development of mental illness and emotional disturbance will be examined from several theoretical perspectives which may include psychoanalytic, phenomenological behavior, communications, and symbolic interactional approaches. Societal stigmas and labeling by the family, the community, and social agencies will be explored as they affect various populations, e.g., majority/minority groups. Research studies from social psychiatry, social psychology, sociology, and anthropology will be discussed, when applicable. Prerequisite: SWRK 631 or consent of instructor.

SOCIAL WELFARE RESEARCH AND TECHNOLOGY

Open to Graduate Students Only

640 Research Methods in Social Work 3 hrs. 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 related to other professional actions. Prerequisite: SWRK 640 or evidence of beginning competency in social research.

645 Social Welfare Policy, Planning, and Administration Technologies 3 hrs. The purpose of this course is to provide students with knowledge and beginning skills in a variety of analytical tools and technologies designed to aid in social welfare policy, planning, and administrative operations. Emphasis is given to skill development in the use of various advanced technologies. Prerequisite: SWRK 630 or consent of instructor.

648 Consultation, Supervision, and Program Development in Social Treatment 3 hrs. Consultation and supervision are examined and explicated as basic methods for maximizing program-service effectiveness in social treatment. These methods are interfaced with the processes of program design, development, and evaluation. Program development may include in-service training, the creation of new resources to meet specific community problems, and designing treatment programs, with attention to minority/majority issues or content in all these areas. Prerequisite: SWRK 661 or consent of instructor.

SOCIAL WORK PRACTICE

Open to Upperclass 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 interaction 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 individualized 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 accumulated 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: Consent 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 home are the focus of various interventive means are explored. Prerequisite: Consent of instructor.

567 Institutional Correctional Social Work 3 hrs.
Social work practice within a variety of institutional correctional settings. Prerequisite: Consent of instructor.

568 Social Work in Non-Institutional Correctional Settings 3 hrs.
Social work treatment with probationers, parolees, and other non-institutional services. Prerequisite: Consent of instructor.

Open to Graduate Students Only

660 The Profession in Contemporary Society 3 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 functionally related to the significant social problems exist in society at a given time. Special attention is given to recent events and trends in the human rights "revolution" and its influence upon the social institutions immediately relevant to social work practice. Prerequisite: Consent of instructor.

661 Social Work Practice Models 3 hrs.
Study and analysis of a basic problem-solving framework which can be adopted for use in identifying and analyzing all types of individual and social problems, developing plans for problem alleviation or resolution, carrying out and monitoring of the plan, evaluation of effectiveness, and termination. In addition, several practice models which offer alternatives to the problem-solving framework are examined and analyzed for the purpose of helping each student conceptualize and develop an approach to practice which is theoretically and professionally sound. The focus throughout the course is on the role and responsibilities of the practitioner. Prerequisite: Consent of instructor, concurrent with SWRK 671.

662 Problem Solving in Social Work Practice 3 hrs.
Application of the problem-solving framework to various sizes and types of client systems including individuals, families, groups, communities, and organizations. Four modules (self-contained, learning units) will be offered, each focusing on problem-solving with a particular client system. Each student will be expected to take two of the four modules. Prerequisite: SWRK 661, concurrent with SWRK 672.

663 Seminar in Substance Abuse I 3 hrs.
An interdisciplinary seminar designed to reflect broadly conceived intervention strategies ranging from primary prevention to rehabilitation of the addict. The basic training in the principles of intervention and clinical practice will continue to be taught within the student's basic professional discipline. In part, the seminar will be used to elaborate upon the application of these principles to the problems of substance abuse. This course is cross-listed with Biology, Counseling-Personnel, Psychology, and Sociology. Open to SPADA students only.

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 hours. Prerequisite: Consent of instructor.

665 Seminar in Substance Abuse II 3 hrs.
Continuation of SWRK 663. This course is cross-listed with Biology, Counseling-Personnel, Psychology, and Sociology.

666 Seminar in Social Treatment 3 hrs.
Study of the structure and dynamics of social 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, concurrent with SWRK 676.

667 Seminar I 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 problem changes and alterations in institutional arrangements. Organizational and interorganizational planning fields are given attention. Prerequisite: SWRK 662 or consent of instructor, concurrent with SWRK 677.

668 Seminar II 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, concurrent with SWRK 678.

669 Seminar II 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, concurrent with SWRK 679.

670 Seminar in Social Policy Practice 3 hrs.
This course in social welfare policy develops and integrates content from other courses in the social welfare policy, planning, and administration concentration which introduce 1) the use of specific tools in policy analysis, and 2) interventive skills in community and organizational policy change. Policy intervention skills are developed in such areas as the writing of policy and position statements, the giving of expert testimony before decision-making bodies, analyzing and summarizing legislative bills and/or judicial opinions, and the processual aspects of such activities as formulating and leading committees and task forces. Prerequisite: SWRK 669 or consent of instructor.

FIELD EDUCATION

Open to Graduate Students Only

671 Field Education in Social Welfare Problem Solving 3 hrs.
After an initial orientation and introduction of field education, students report to assigned community agencies for two (2) full days per week, where they are given responsibility for working with individuals, families, groups, community problems, and policy, planning, and administrative assignments under the supervision of a field instructor. The emphasis will be on applying a problem-solving model of social work practice to individual and family problems, to agency and community problems, and to broad scale policy and planning problems. Campus or field-based seminars, designed to integrate classroom and field learning, are held periodically throughout the semester. Prerequisites: Consent of instructor, concurrent with SWRK 661.

672 Field Education in Social Work Intervention 3 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, concurrent with SWRK 662.

676 Field Education in Social Treatment 3 hrs.
Placement will be in an agency unit through which experiences in social treatment (counseling 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 instructor, concurrent with SWRK 666.

677 Field Education in Social Planning and Administration 3 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 placement in social welfare...
organizations or special programs are arranged in accordance with student interests and abilities. Prerequisite: SWRK 672 or consent of instructor, concurrent with SWRK 667.

678 Advanced Field Education in Social Treatment 3 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, concurrent with SWRK 668.

679 Advanced Field Education in Social Planning and Administration 3 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, concurrent with SWRK 669.

SPECIAL SEMINARS AND PROJECTS
Open to Upperclass and Graduate Students

564 Special Studies in Social Welfare Practice 1-4 hrs.
Study of selected topics related to the theory and practice of social welfare activities and endeavors. Focus will be on roles of human service workers and methodologies utilized in these roles in a range of social welfare areas. Specific topics will be announced. Prerequisite: Consent of instructor.

597 Teaching Apprenticeship in Selected Social Work Curriculum Areas 1-4 hrs.
The course focuses on the development of educational skills for social workers through faculty-directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area.

Individual study in social welfare and social work topics which are not covered in the University's graduate course offerings. Prerequisite: Consent of major adviser 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 6 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 descriptions.

710 Independent Research 2 hrs.

Speech Pathology and Audiology (SPPA)

Erickson, Chairperson; Professors Bate, Robinson, Stromsta, Willis; Associate Professor Lohr; Assistant Professor Clark.

Open to Upperclass and Graduate Students

500 Scientific Methods in Speech, Language, and Hearing Fall, 2 hrs.
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.

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 audiologv. Prerequisites: SPPA 300, 357.

551 Neuropathologies of Speech 2 hrs.
This course is concerned primarily with surveying selected communication disorders associated with neuropathologies. Prerequisites: SPPA 200, 202, 203.

552 Communication Problems of the Aged 3 hrs.
This course is designed to acquaint the student with receptive and expressive communication problems common to older adults. Emphasis will be on the clinical management of characteristic organic speech disorders and impaired auditory functions associated with aging.

554 Speech and Hearing Therapy in the Schools 2 hrs.
Study of clinical work with speech and hearing handicapped children in the school setting. Prerequisite: SPPA 351, 353, 354, 355.

555 Hearing Measurement 2 hrs.
This course is designed to acquaint the student with principles, theories, and methods of hearing measurement which provide the basis for clinical and audiometric procedures.

556 Rehabilitative Audiology 3 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment.

557 Educational Audiology 3 hrs.
This course deals with the educational, psychological, and vocational needs of the hearing impaired child and the parameters that affect educational programming.

595 Oral Language Development and Dysfunction 2 hrs.
This course is designed to provide 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 SPPA 201 or its equivalent. Not applicable towards the Master's degree in Speech Pathology and Audiology.

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

610 Diagnostic 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 3 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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>613</td>
<td>Industrial and Public Health Audiology</td>
<td>2 hrs.</td>
</tr>
<tr>
<td></td>
<td>A study of hearing conservation programs in industry including noise measurement, damage-risk criteria, hearing measurement, and medico-legal problems; noise in communities; noise as a public health hazard; and hearing screening and deafness prevention programs.</td>
<td></td>
</tr>
<tr>
<td>650</td>
<td>Seminar in Speech Pathology</td>
<td>1-4 hrs.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>651</td>
<td>Seminar in Speech and Hearing Science</td>
<td>2-4 hrs.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>652</td>
<td>Seminar in Audiology</td>
<td>2-4 hrs.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
</tr>
<tr>
<td>653</td>
<td>Diagnosis and Appraisal I: Principles</td>
<td>Fall, 3 hrs.</td>
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<tr>
<td></td>
<td>This course is intended to provide theoretical basis for the examination of persons with speech, hearing, and language disorders.</td>
<td></td>
</tr>
<tr>
<td>654</td>
<td>Diagnosis and Appraisal II: Procedures</td>
<td>Winter, 2 hrs.</td>
</tr>
<tr>
<td></td>
<td>In this course the student gains experience with instruments, procedures, and techniques designed for the appraisal and diagnosis of communication disorders. One hour per week of participation in outpatient diagnostic examinations is required.</td>
<td></td>
</tr>
<tr>
<td>655</td>
<td>Diagnosis and Appraisal III: Practicum</td>
<td>2 hrs.</td>
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<tr>
<td></td>
<td>In this registration students are afforded the opportunity in outpatient diagnostic examinations.</td>
<td></td>
</tr>
</tbody>
</table>
School of Librarianship

JEAN E. LOWRIE,
Director

Graduate Offering:
Librarianship
Librarianship (LIB)

Lowrie, Director; Professor Grotzinger; Associate Professors Baechtold, Comaromi, McKinney, Murphy; Assistant Professors Bemels, Carroll, Eriksen, Gilham, Smith.

Open to Upperclass 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 ½ 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 given 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 broader 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/her special area of interest; arranged in consultation with a graduate adviser. Prerequisite: Written permission of instructor.

Open to Graduate Students Only

600 Libraries and Librarianship 3 hrs.
An introduction to librarianship through study of the historical development of the library, the function of the modern library and its contributions to society, librarianship as a profession and current trends. Independent study and small group discussions.

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, inventories, and spread of printing 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. Approved application required.

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/her choice. Prerequisite: LIB 512 or equivalent. LIB 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 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. Prerequisite: LIB 512 or equivalent.

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.

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. Not open to students with PTC status.

624 Library Service to Children and Young Adults 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; program development in children's and youth adult departments.

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 622 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. Guest lecturers and field trips.

629 Research Methods in Librarianship 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 investigation and analysis of current problems in public, college, school, and special libraries. Prerequisite: Written permission of instructor or 24 hours of Librarianship courses. Not open to students with PTC status.

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 economies of technical processing departments. Prerequisite: LIB 530 or equivalent.

631 Technical Services for School Media Centers 3 hrs.
Organization of book and nonbook materials for the school media
center. Theory and application of descriptive cataloging, entry rules, subject cataloging, and classifying according to the Dewey Decimal Classification. Special emphasis on technical services administration in building level media centers and centralized processing systems.

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 Library Automation 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 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. Prerequisite: LIB 634 or 506, taken prior to or concurrently with 635, or permission of the instructor.

636 Indexing, Abstracting, and Automated Language Processing 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.

637 On-Line Searching of Data Bases 1-3 hrs.
Three topics of one credit hour each on on-line searching of data bases: (1) Introduction to on-line systems, consideration of communication networks and computer terminal equipment, and comparison of on-line systems; (2) on-line searching using Lockheed's DIALOG system; (3) on-line searching using System Development Corporation's ORBIT system. A student may enroll for one, two, or three credit hours. No topic is a prerequisite for another.

644 Adult Reading Interests 3 hrs.
Evaluation of findings of reading interest 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, and migrant communities and the relationship of library services to them through cooperative program planning between public and school libraries. 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 practices. Lectures, field trips, and resource consultants. Offered irregularly. (Cross-listed with ED 644.)

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. Offered irregularly.

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 for research. Offered irregularly.

690 Studies in Librarianship 1-6 hrs.
Examines selected topics within the field of library science. Topics considered will vary from semester to semester. (Cross-listed with ED 646.)

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.
The Graduate College

SID DYKSTRA,
Acting Dean

Graduate Offering:
Graduate Studies
Graduate Studies (GRAD)

Open to Graduate Students Only

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, the student should seek permission to register for it as a Graduate College (GRAD) course. All 700-level courses are 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. An application form, signed by the student's graduate adviser and the faculty supervisor, must be submitted to Registration at the time of enrollment. A student must purchase "Specifications for Masters' Theses. Specialist Projects, and Doctors' Dissertations," available in the bookstore. Graded on a Credit/No Credit basis.

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. An application form, signed by the student's graduate adviser and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit/No Credit basis.

712 Professional Field Experience 2-12 hrs.
Designed for superior graduate students who wish to pursue internships or apprenticeships off-campus in industries or institutions. An application form, signed by the student's graduate adviser and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit/No Credit basis.

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. Students must purchase "Specifications for Masters' Theses. Specialist Projects, and Doctors' Dissertations," available in the bookstore. An application form, signed by the student's graduate adviser and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit/No Credit basis.

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. Graded on a Credit/No Credit basis.

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 the 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. Students must purchase "Specifications for Masters' Theses. Specialist Projects, and Doctors' Dissertations," available in the bookstore. An application form, signed by the student's graduate adviser and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit/No Credit basis.

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. Graded on a Credit/No Credit basis.
## The Graduate Faculty

Graduate Faculty with permanent approval:

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agor, Weston H.</td>
<td>Adjunct Associate Professor of Political Science</td>
<td>B.A., Western Michigan; M.A., Ph. D., Ohio</td>
</tr>
<tr>
<td>Adams, David W.</td>
<td>Professor of Education and Professional Development</td>
<td>B.A., Ohio Wesleyan; M.A., Ed. D., New York</td>
</tr>
<tr>
<td>Adams, Phillip D.</td>
<td>Associate Professor of Humanities</td>
<td>B.A., Western Michigan; M.A., Ph. D., Ohio</td>
</tr>
<tr>
<td>Agor, Weston H.</td>
<td>Adjunct Associate Professor of Political Science</td>
<td>B.A., St. Lawrence University; M.P.A., Michigan; Ph. D., University of Wisconsin</td>
</tr>
<tr>
<td>Alag, Gursh S.</td>
<td>Assistant Professor of Electrical Engineering</td>
<td>B.E., Savgor (India); M.E., Calcutta (India); D.Engr., Rensselaer Polytechnic</td>
</tr>
<tr>
<td>Alessi, Galen J.</td>
<td>Assistant Professor of Psychology</td>
<td>B.S., Maryland; M.A., Western Michigan; Ph.D., Maryland</td>
</tr>
<tr>
<td>Alavi, Yousef</td>
<td>Professor of Mathematics</td>
<td>B.S., M.S., Ph. D., Michigan State</td>
</tr>
<tr>
<td>Allgood, William T.</td>
<td>Assistant Professor of Music</td>
<td>B.A., East Carolina; M.M., Illinois; D.M.A., Michigan</td>
</tr>
<tr>
<td>Alvarez, Elsa</td>
<td>Associate Professor of Spanish</td>
<td>M.A., Iowa; Ph.D., Havana; Ph.D., Michigan State</td>
</tr>
<tr>
<td>Anderson, M. Joy</td>
<td>Assistant Professor of Occupational Therapy</td>
<td>B.A., David Lipscomb College; Certificate in Occupational Therapy, Texas Women's; M.A., Western Michigan</td>
</tr>
<tr>
<td>Anderson, Robert H.</td>
<td>Associate Professor of Chemistry</td>
<td>B.A., Baker; M.A., Ph. D., Columbia</td>
</tr>
<tr>
<td>Appel, William C.</td>
<td>Professor of Music</td>
<td>B.S., State Teachers of Indiana (Pa.); M. Mus., Indiana</td>
</tr>
<tr>
<td>Argyropoulos, Triantafilos</td>
<td>Associate Professor of Art</td>
<td>B.S., M.F.A., Michigan</td>
</tr>
<tr>
<td>Armstrong, James W.</td>
<td>Assistant Professor of Education and Professional Development</td>
<td>B.S., Northwestern; Ed. D., Indiana</td>
</tr>
<tr>
<td>Asher, E. Jack, Jr.</td>
<td>Director of Institutional Research and Professor of Psychology</td>
<td>B.S., Kentucky; M.S., Ph. D., Purdue</td>
</tr>
<tr>
<td>Atkins, Michael B.</td>
<td>Associate Professor of Industrial Education</td>
<td>B.S., M.S., East Texas State; Ed.D., Texas A &amp; M</td>
</tr>
<tr>
<td>Bailey, Frederick S.</td>
<td>Assistant Professor of Education and Professional Development</td>
<td>B.S., M.A., Western Michigan; Ph.D., Michigan State</td>
</tr>
<tr>
<td>Bailey, Thomas C.</td>
<td>Assistant Professor of English</td>
<td>B.A., Oberlin College; M.A., Missouri; Ph.D., Washington (St. Louis)</td>
</tr>
<tr>
<td>Baker, Ahmad</td>
<td>Assistant Professor of Special Education</td>
<td>B.S. &amp; M.S., Old Dominion University (Virginia); Ph.D., University of Virginia</td>
</tr>
<tr>
<td>Baker, Lee O.</td>
<td>Professor and Head, Department of Agriculture</td>
<td>B.S., Wisconsin State (Platteville); M.S., Wisconsin; Ed.D., Michigan State</td>
</tr>
<tr>
<td>Balkin, Alfred</td>
<td>Assistant Professor of Education and Professional Development</td>
<td>B.A., M.A., Indiana; M.A., Ed. D., Columbia</td>
</tr>
<tr>
<td>Ball, Thomas M.</td>
<td>Assistant Professor of Education and Professional Development</td>
<td>A.B., Miami (Florida); M.Ed., Ed. D., Florida</td>
</tr>
<tr>
<td>Barstow, Robert H.</td>
<td>Associate Professor and Director of Social Work</td>
<td>B.A., Western Michigan; M.S.W., Michigan</td>
</tr>
<tr>
<td>Batch, Nicholas C.</td>
<td>Assistant Professor of General Business</td>
<td>B.A., Michigan; M.B.A., Western Michigan; J.D., Wayne State</td>
</tr>
<tr>
<td>Bate, Harold L.</td>
<td>Professor of Speech Pathology and Audiology</td>
<td>B.A., Butler; M.A., Florida; Ph. D., Wisconsin</td>
</tr>
<tr>
<td>Bauch, Christopher D.</td>
<td>Assistant Professor of Speech Pathology and Audiology</td>
<td>B.A., Elmhurst; M.S., Idaho State; Ph. D., Utah</td>
</tr>
<tr>
<td>Beam, Henry H.</td>
<td>Assistant Professor of Management</td>
<td>B.S.E., Princeton; M.S.E.E., M.B.A., Ph. D., Michigan</td>
</tr>
<tr>
<td>Beech, George T.</td>
<td>Professor of History</td>
<td>B.A., Michigan State; Ph.D., Johns Hopkins</td>
</tr>
<tr>
<td>Bendix, John L.</td>
<td>Professor of Industrial Education</td>
<td>B.S., Stout State; M.A., Minnesota; Ed.D., Indiana</td>
</tr>
<tr>
<td>Benne, Max E.</td>
<td>Associate Professor of Agriculture</td>
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<tr>
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</tr>
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<td>B.S., Ball State; M.A., Ph. D., Indiana</td>
</tr>
<tr>
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<tr>
<td>Boucher, Joan Ann</td>
<td>Associate Professor of Music</td>
<td>B.M., M.M., Chicago Musical; Ph. D., Boston</td>
</tr>
<tr>
<td>Bouna, Donald H.</td>
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</tr>
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<td>Bournazos, Kimon</td>
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<tr>
<td>Bowers, Robert S.</td>
<td>Professor of Economics</td>
<td>B.A., Kansas Wesleyan; M.A., American; Ph. D., Wisconsin</td>
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<td>Braithwaite, Lloyd</td>
<td>Associate Professor of Sociology and Social Work</td>
<td>B.S., M.Crim., D.Crim., California (Berkeley)</td>
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</tbody>
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The Graduate Faculty

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B.A., College of St. Francis; M.S., Ed.D., Northern Illinois

Brasher, Robert M., 1969, Assistant Professor of Education and Professional Development
B.S., Memphis State; M.R.E., Southwestern Seminary; M.Ed., Texas Christian; Ph.D., Texas

Brawer, Milton J., 1960, Professor of Sociology
B.A., Harvard; Ph.D., Columbia

Brendan, Margaret Jane, 1965, Professor of Home Economics
B.S., Western Michigan; M.A., Columbia; Ed.D., Pennsylvania State

Brenton, Beatrice, 1969, Associate Professor of Education and Professional Development
B.S., Wisconsin (Menominee); M.A., Ph.D., Michigan State

Brehm, Dale, 1978, Associate Professor of Psychology
A.B., Kansas; A.M., Harvard; Ph.D., Michigan

Brewer, Richard D., 1959, Professor of Biology
B.A., Southern Illinois; M.S., Ph.D., Illinois

Brown, Alan S., 1955, Professor of History
B.A., M.A., Ph.D., Michigan

Brown, Charles T., 1948, Professor of Communication Arts and Sciences
B.A., Westminster; M.A., Ph.D., Wisconsin

Brown, Donald J., 1960, Associate Professor of Chemistry
B.A., Ph.D., Syracuse

Bruce, Philip L., 1963, Associate Professor of Industrial Education
B.S., M.S., Kansas State College of Pittsburgh; Ed.D., Missouri

Brunhumer, Walter J., 1957, Professor of History
B.A., M.A., Marquette; Ph.D., Northwestern

Buckley, Joseph T., 1970, Associate Professor of Mathematics
B.S., Boston College; Ph.D., Indiana

Bullmer, Kenneth, 1970, Associate Professor of Counseling and Personnel
B.S., B.A., Washington; M.A., Michigan; Ed.D., Indiana

Bullock, Donald P., 1963, Professor of Music
B.M.E., M.M., Colorado

Bunda, Mary Anne, 1973, Associate Professor of Educational Leadership and Associate Director, The Evaluation Center
B.S., M.Ed., Loyola (Chicago); Ph.D., Illinois (Urbana)

Burick, William L., 1949, Professor of General Business
B.A., Milton; M.B.A., Ph.D., Wisconsin

Burian William A., 1969, Dean, College of Health and Human Services, and Professor of Social Work
B.S., John Carroll; M.S.W., Boston College; Ph.D., Chicago

Burke, John T., 1962, Professor of Accountancy
B.S., M.A., Ph.D., Michigan State; C.P.A., Wisconsin

Burke, Richard T., 1964, Dean, Division of Continuing Education, and Associate Professor of History
B.A., M.A., Boston; Ph.D., Northwestern

Burns, James W., 1968, Associate Professor of Education and Professional Development
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Bush, Mary Ann, 1974, Assistant Professor of Occupational Therapy
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B.S., South Dakota State; M.A., Oklahoma State; Ph.D., Iowa State

Butler, Herbert, 1960, Professor of Music
American Conservatory of Music; Eastman School of Music; B.M., M.M., Indiana

Buts, William E., 1964, Professor of Communication Arts and Sciences
B.A., Albion; Ph.M., Ph.D., Wisconsin

Byler, Arvon D., 1963, Professor of Industrial Education
B.S., M.A., Western Michigan; Ph.D., Michigan State

Cain, Mary A., 1962, Professor of Education and Professional Development
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Callan, Edward T., O.D., 1957, Professor of English
B.A., Witwatersrand; M.A., Fordham; D. Litt. et Phil., University of South Africa

Cardenas, Mercedes R., 1966, Assistant Professor of Spanish
B.A., M.A., Michigan State; Ed.D., Havana; Ph.D., Michigan State

Carey, Thomas A., 1974, Assistant Professor of Management
B.B.A., Notre Dame; M.B.A., Ed.D., Western Michigan

Carl, David D., 1964, Professor of Physics
B.A., Western Michigan; M.S., Michigan; Ph.D., Florida

Carlson, Bernadine P., 1953, Associate Professor of English
B.A., M.A., Western Michigan; Ed.D., Michigan

Carlson, Lewis H., 1968, Associate Professor of Humanities
B.A., M.A., Michigan; Ph.D., Michigan State

Carlson, Norman E., 1963, Associate Professor of English
B.A., Carleton; M.A., Ph.D., Rutgers

Carlson, William C., 1966, Professor of Counseling and Personnel

Carney, John M., 1966, Associate Professor of Art

Carroll, Hardy, 1970, Assistant Professor of Librarianship
B.A., Guilford; B.D., Hartford Theological Seminary; M.S.L.S., Drexel; Ph.D., Case Western Reserve

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B.A., Alma; M.A., Ed.D., Columbia

Castel, Albert E., III, 1960, Professor of History
B.A., M.A., Wichita; Ph.D., Chicago

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B.A., Stetson; B.D., Union Theological Seminary; M.A., Rutgers; Th.M., Princeton Theological Seminary; Ph.D., Columbia

Chaplin, David, 1972, Professor and Chairperson, Department of Sociology
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B.S., M.S., Ph.D., Michigan State

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Clary, Michael J., 1971, Assistant Professor of Speech Pathology and Audiology
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Copps, John A., 1959. Professor of Economics
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Cordier, Sherwood S., 1956. Professor of History
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Crow, Casper, 1973. Assistant Professor of Geology
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Crown, Lowell E., 1974. Assistant Professor of Marketing
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Davenport, James A., 1957. Associate Professor of Educational Leadership
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Davis, Charles, 1961. Associate Professor of Electrical Engineering
B.S., M.E.E., Michigan State; M.S.E.E., Michigan; Ph.D., Michigan State; P.E.

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Eisenberg, Robert C., 1967, Associate Professor of Biomedical Sciences
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Ellin, Joseph S., 1962, Associate Professor of Philosophy
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Ekasser, Edward O., 1955, Professor of History
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Engemann, Joseph G., 1960, Associate Professor of Biology
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Falk, Arthur E., 1964, Professor of Philosophy
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Falk, Nancy E., 1969, Associate Professor of Religion
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Farris, Howard E., 1967, Professor of Psychology
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Feirer, John L., 1940, Professor and Head, Department of Industrial Education
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Felkel, Robert W., 1971, Assistant Professor of Spanish
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Fischbach, Gerald F., 1973, Associate Professor of Music
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Fisk, Franklin G., 1969, Associate Professor of Natural Science and Education and Professional Development
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Fitch, W. Chester, 1968, Dean, College of Applied Sciences, and Professor of Industrial Engineering
B.S., Montana State; M.S., Ph.D., Iowa State; P.E.

Fleischhacker, Daniel, 1965, Associate Professor of Theatre
B.A., B.S., M.A., Minnesota; Ph.D., Michigan State

Fleming, James F., 1977, Assistant Professor of Business Education and Administrative Services
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Flynn, John P., 1970, Professor of Social Work
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Foote, J. Lindsley, 1965, Associate Professor of Chemistry
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Fowler, Dona J., 1965, Associate Professor of Biology
B.S., M.S., Ph.D., Purdue

Frattallone, Joseph A., 1965, Associate Professor of Art
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Freeman, Caryl P., 1970, Associate Professor of Business Education and Administrative Services
B.A., Michigan State University; M.A.T., Harvard/Radcliffe; Ed.D., New York

Friday, Paul C., 1972, Associate Professor of Sociology
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Friedman, Stephen B., 1966, Associate Professor of Biomedical Sciences
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Galligan, Edward L., 1958, Professor of English
B.A., Swarthmore; M.A., Columbia; Ph.D., Pennsylvania

Gardiner, Jeffrey B., 1970, Assistant Professor of German
B.A., Stanford; M.A., Colorado

Gardner, Wayland D., 1964, Associate Professor of Economics
B.A., Doane; M.S., Ph.D., Wisconsin

Garland, Elizabeth B., 1964, Associate Professor of Anthropology
B.A., Wellesley; M.A., Radcliffe; Ph.D., Harvard

Garland, William, 1962, Professor of Anthropology
B.A., Texas; Ph.D., Minnesota

Gault, Frederick P., 1968, Professor of Psychology
B.A., Rutgers; M.A., Ph.D., Indiana

Geisler, John S., 1976, Associate Professor of Counseling and Personnel
B.S., Adrian; M.Ed., Ed.D., Toledo

Gheen, W. Lloyd, 1970, Assistant Professor of Industrial Education
B.S., Brigham Young; M.Ed., Ed.D., Texas A&M

Gianakaris, Constantine J., 1966, Professor of English
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Gingerich, Martin E., 1968, Associate Professor of English
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Ginsberg, Leonard C., 1977, Assistant Professor of Biomedical Sciences
B.S., Albright College; M.S., Ph.D., Temple

Gioia, Anthony A., 1966, Professor of Mathematics
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Goldfarb, Clare R., 1961, Professor of English
B.A., Smith; M.A., New York; Ph.D., Indiana

Goldfarb, Russell M., 1960, Professor of English
B.A., University College, New York; M.A., New York; Ph.D., Indiana

Goldsmith, Donald L., 1968, Professor of Mathematics
B.A., M.A., Ph.D., Pennsylvania

Goodnight, Clarence J., 1965, Professor of Biology
B.A., M.A., Ph.D., Illinois

Gossman, Thomas L., 1970, Associate Professor of General Business
B.S., J.D., Indiana

Grace, John D., 1969, Associate Professor of Geology
B.A., Denison; M.S., Pennsylvania State; Ph.D., Leeds

Grandstaff, Russell J., 1965, Professor of Theatre
B.A., Fairmont State College; M.A., Bowling Green State; Ph.D., Michigan

Greenberg, Norman C., 1972, Dean, College of General Studies, and Professor of Anthropology and Social Science
B.S., Juilliard School of Music; M.A., Columbia; Ed.D., Colorado

Gregory, Ross, 1966, Professor of History
B.A., M.A., Ph.D., Indiana

Griffith, Paul L., 1958, Professor of Counseling and Personnel
B.A., Michigan State; M.A., Ph.D., Iowa

Griffin, Robert J., 1971, Associate Professor of Spanish
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Griggs, James H., 1948, Professor of Education
B.A., Harvard; M.A., Ed.D., Columbia

Grotzinge, Lauret Ann, 1964, Professor of Librarianship
B.A., Carleton; M.S., Ph.D., Illinois

Grout, Roy W., 1957, Professor of Industrial Engineering
B.A., M.A., Ph.D., Michigan State; P.E.

Gründler, Otto, 1961, Director, Medieval Institute,
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ABITUR, Gymnasium Nordhorn (Germany);
B.D., Western Theological Seminary;
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Hahnberg, Willard, 1957, Associate Professor of Music
B.A., M.A., Western Michigan

Hahn, Robert J., 1961, Associate Professor of History
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Halvis, Earl E., 1971, Assistant Professor of Business Education and Administrative Services
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B.A., M.A., Emory; Ph.D., Ohio State

Hannaford, Alonzo E., 1970, Associate Professor of Special Education
B.S., M.S., Illinois State; Ed.D., Northern Colorado State

Hannah, Robert W., 1970, Secretary, Board of Trustees,
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B.A., Yale; M.A.T., Harvard; Ph.D., Michigan State

Hannah, Susan, 1972, Adjunct Assistant Professor of Political Science
B.A., Agnes Scott College; M.A.T., Harvard; Ph.D., Michigan State

Hardie, Gerald, 1965, Professor of Physics
B.S., M.S., Manitoba (Canada); Ph.D., Wisconsin

Hardie, Thomas C., 1957, Associate Professor of Music
B.Mus., M.Mus., North Texas State

Hark, Salim E., 1974, Assistant Professor of Economics
B.A., American (Beirut); M.A., Ph.D., Wayne State

Harmon, Robert E., 1961, Professor of Chemistry
B.S., Washington State; Ph.D., Wayne State

Harring, Richard L., 1968, Associate Professor of Education and Professional Development
B.S., M.A., Eastern Michigan; Ed.D., Indiana

Harrison, William B., III, 1973, Assistant Professor of Geology
B.A., M.A., South Florida; Ph.D., Cincinnati

Hartenstein, Fred V., 1959, Professor and Chairperson,
Department of Management
B.A., M.A., Ph.D., Pittsburgh

Hawks, Graham P., 1960, Associate Professor of History
B.A., Rochester, M.S., Ph.D., Wisconsin

Hefner, Harry S., 1940, Professor of Art
B.A., Western Michigan; M.A., Columbia

Heining, Edward J., 1963, Professor of Education and Professional Development
B.A., Indiana State; M.A., Ph.D., Michigan

Heining, Ruth B., 1977, Associate Professor of Communication Arts and Sciences
B.A., Valparaiso; M.A., Ph.D., Pittsburgh

Hegesen, Charles, 1955, Professor of Communication Arts and Sciences
B.S., St. Cloud; M.A., Ph.D., Denver

Heller, Charles F., 1961, Professor of Geography
B.A., M.A., Kansas; Ph.D., Illinois

Hendricksen, Daniel P., 1966, Associate Professor of Linguistics
B.A., Calvin; M.A. (Edu.), M.A. (Linguistics), Ph.D., Michigan

Henkels, Robert M., 1977, Associate Professor of Modern and Classical Languages
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Herman, John E., 1966, Associate Professor of Computer Science
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B.S.E.E., M.S.E.E., Ph.D., (E.E.), Illinois

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Hill, James W., 1970, Professor of Management
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Hirsch, Christian R., Jr., 1973, Associate Professor of Mathematics
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Hirth, Kenneth G., 1976, Assistant Professor of Anthropology
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Ho, Alfred K., 1967, Professor of Economics
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B.A., M.A., Indiana; Ph.D., Oregon State

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Holkeboer, Paul E., 1955, Professor of Chemistry
B.A., Hope; M.A., Ph.D., Purdue

Holmes, Robert W., 1966, Dean, College of Fine Arts,
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B.Mus., M.A., Ph.D., Boston

Holt, Imy Vincent, 1961, Professor of Biology
B.S., New Mexico State; M.S., Ph.D., Iowa State

Hong, Inja, 1977, Associate Professor of Education and Professional Development
B.A., M.A., Ewha Women’s (Korea); M.S., Ph.D., Wisconsin (Madison)

Hopkins, Robert F., 1975, Professor of Counseling and Personnel
B.A., Ed.D., Michigan State

Horst, Oscar H., 1956, Professor of Geography
B.S., M.A., Ph.D., Ohio State

Horton, Paul B., 1945, Professor of Sociology
B.A., Kent State; Ph.D., Ohio State

Houde, John T., 1969, Assistant Professor of Agriculture
B.A., M.A., Ph.D., Michigan State

Houghton, David G., 1974, Assistant Professor of Political Science
B.A., Wayne State; M.A., Wisconsin; Ph.D., Colorado

Houser, Thomas, 1964, Professor of Chemistry
B.S., Illinois Institute of Technology; M.S., Ph.D., Michigan

Howard, Michael, 1977, Associate Professor of Education and Professional Development
A.B., Boston; M.A., Ph.D., Stanford

Howell, James A., 1965, Associate Professor of Chemistry
B.A., Southern Illinois; M.S., Illinois; Ph.D., Wayne State

Hoy, Joseph T., 1952, Professor of Physical Education and Director of Athletics
B.S., Western Michigan; M.A., Michigan; Ed.D., Indiana

Hsieh, Philip Po-Fang, 1964, Professor of Mathematics
B.S., National Taiwan; M.S., Ph.D., Minnesota

Huitema, Bradley E., 1968, Associate Professor of Psychology
B.A., Southern Illinois; M.A., Western Michigan;
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Humbert, Jack T., 1974, Associate Professor of Distributive Education
B.S., Wisconsin; M.B.A., Pittsburgh; Ed.D., New Mexico

Humiston, Robert G., 1961, Associate Professor of Music
B.M., Oberlin; M.A., Ph.D., Iowa

The Graduate Faculty
Hunt, Chester L., 1948, Professor of Sociology  
B.A., Nebraska Wesleyan; M.A., Washington (St. Louis); Ph.D., Nebraska

Hutchings, Gilbert R., 1955, Professor of Industrial Education  
B.S., Western Michigan; M.A., Michigan

Icbone, Donna Gordon, 1977, Assistant Professor of Special Education  
B.S., Pennsylvania State; M.Ed., Leobone; Ph.D., Minnesota

Ifland, Don C., 1956, Professor and Chairperson, Department of Chemistry  
B.S., Adrian; M.S., Ph.D., Purdue

Inselberg, Edgar, 1966, Associate Professor of Biology  
B.S., Cornell; M.S., Ph.D., Illinois

Inselberg, Rachel M., 1966, Professor of Education and Professional Development  
B.S., Philippine Women's; M.S., Illinois; Ph.D., Ohio State

Issa, A. D., 1976, Associate Professor of General Business  
B.S., M.S., Ph.D., Illinois

Iwata, Brian A., 1974, Assistant Professor of Psychology  
B.A., Loyola College; M.A., Ph.D., Florida State

Jacobs, Alan H., 1974, Professor and Chairperson, Department of Anthropology  
M.A., Chicago; D.PhiL., Oxford

Jaksa, James A., 1967, Associate Professor of Communication Arts and Sciences  
B.A., Central Michigan; M.A., Michigan; Ph.D., Wayne State

Janes, Raymond L., 1957, Professor of Paper Science and Engineering  
B.S., Western Michigan; D.S., Gottesman; M.S., Ph.D., Institute of Paper Chemistry (Lawrence University)

Jevert, Joseph A., 1962, Associate Professor of Athletics  
B.S., Wisconsin State; M.A., Western Michigan (Dir. P.E., Indiana)

Johnson, G. Stewart, 1960, Professor and Chairperson, Department of Mechanical Engineering  
B.S.E., (M.E.), Michigan; (M.E.), Michigan State; P.E.

Johnson, Gordon O., 1960, Associate Professor of Industrial Education  
B.S., Northeast Missouri State; M.Ed., Missouri; Ed.D., Indiana

Johnston, William Arnold, 1966, Associate Professor of English  
Ph.B., Wayne State; M.A., Ph.D., Delaware

Jones, Darrell G., 1962, Dean, College of Business, and Professor of Business Education and Administrative Services  
B.S., M.A., Northern Iowa; Ph.D., Michigan State

Josten, John J., 1968, Associate Professor of Biomedical Sciences  
B.S., Cincinnati; M.S., Miami; Ph.D., Indiana

Junkel, Louis J., 1961, Professor of Economics  
B.A., Denver; M.A., Connecticut; Ph.D., Wisconsin

Kaarlela, Ruth, 1963, Associate Professor of Blind Rehabilitation  
B.A., M.S.W., Wayne State

Kana'an, Adli S., 1965, Professor of Chemistry  
B.S., Arts and Sciences College (Baghdad); M.S., Colorado State; Ph.D., Wisconsin

Kanamueller, Joseph M., 1966, Associate Professor of Chemistry  
B.S., St. Joseph; Ph.D., Minnesota

Kanzler, William H., 1961, Professor of Education and Professional Development  
B.S., U.S. Naval Academy; M.A., Columbia; Ed.D., Wayne State

Kapoor, S. F., 1967, Associate Professor of Mathematics  
B.S., M.S., B.L., Bombay; Ph.D., Michigan State

Karsten, David, 1967, Associate Professor of Theatre  
B.A., Hope; M.A., Northwestern; Ph.D., Michigan State

Kaufman, Maynard L., 1963, Associate Professor of Religion  
B.A., Bethel; M.A., Ph.D., Chicago

Kaufman, Robert W., 1959, Professor of Political Science, Director of Institute of Public Affairs, and Director of Environmental Studies  
B.S., Wisconsin; M.A., Ph.D., American

Kaul, R. Dean, 1967, Associate Professor of Physics  
B.S., Ph.D., Case Institute of Technology

Keaveny, Richard, 1968, Associate Professor of Art  
B.S., Massachusetts College of Art; M.F.A., Rhode Island School of Design

Keenan, J. Michael, 1962, Professor of Management  
B.A., M.S., Colorado; Ph.D., Ohio State

Kemelgor, Bruce H., 1974, Assistant Professor of Management  
B.S., Maine; M.S., North Carolina State; Ph.D., Illinois

Kent, Neil D., 1965, Professor of Psychology  
B.A., M.A., Baylor; Ph.D., Indiana

Kerstetter, Mark C., 1977, Assistant Professor of Computer Science  
B.A., LaSalle; M.S., Johns Hopkins; Ph.D., Northwestern

Kilty, Ted K., 1968, Associate Professor of Education and Professional Development  
B.A., M.A., Andrews; Ph.D., Michigan

Kim, C. I., Eugene, 1961, Professor of Political Science  
B.A., King; M.A., Vanderbilt; Ph.D., Stanford

King, Donald E., 1966, Associate Professor of Art  
B.F.A., California College of Arts and Crafts; M.F.A., Mills

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B.Ed., Chicago State; M.S., Ph.D., Northwestern

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B.A., St. Augustine's; M.S.W., Atlanta; M.S., Ph.D., Pittsburgh

Kissel, Johannes A., 1968, Associate Professor of German  
B.A., Mercer; M.A., Ph.D., Michigan State

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B.A., M.A., Ph.D., Illinois

Kline, James E., 1963, Associate Professor of Paper Science and Engineering  
B.S., M.S., Western Michigan

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B.A., Oberlin; M.S., Wisconsin; M.A., Yale; Ph.D., Johns Hopkins

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B.A., Colorado; M.A., Ph.D., Nebraska

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M.S., Bombay; M.S., Ph.D., North Carolina State; F.I.A., Institute of Actuaries (London)

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Labowitz, Alan, 1974, Assistant Professor of Communication Arts and Sciences  
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Lamper, Neil, 1959, Associate Professor of Counseling and Personnel  
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Large, Margaret S., 1949, Professor of Physical Education
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B.S., M.A., Ph.D., Minnesota

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Link, L. John, 1977, Associate Professor and Chairperson,
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B.A., M.F.A., Oklahoma

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Lloyd, Bruce A., 1967, Professor of Education
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B.S., M.Ed., Ph.D., Ohio

Loffler, Erika, 1971, Assistant Professor of Anthropology
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Loffler, Reinhold L., 1967, Associate Professor of Anthropology
B.A., Innsbruck Teacher Training College; Ph.D., Mainz

Loew, Cornelius, 1956, Vice President for Academic Affairs
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B.A., Elmhurst; B.D., S.T.M., Union Seminary; Ph.D., Columbia

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B.A., M.Ed., Florida; Ph.D., Wayne State

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B.A., Keuka; B.S.L.S., Western Reserve; M.A., Western Michigan;
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Lowry, George G., 1968, Professor of Chemistry
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Maher, Robert F., 1957, Professor of Anthropology
B.S., M.S., Ph.D., Wisconsin

Maier, Paul L., 1959, Professor of History
B.A., B.D., Concordia Seminary; M.A., Harvard; Ph.D., Basel

Mallinson, George G., 1948, Distinguished Professor of Science Education
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B.A., Kalamazoo; M.A., Michigan

Malott, Marilyn Kay, 1975, Assistant Professor of Psychology
B.S., Indiana; M.A., Columbia; Ph.D., Michigan

Malott, Richard W., 1966, Professor of Psychology
B.A., Indiana; Ph.D., Columbia

Manis, Jerome G., 1952, Professor of Sociology
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Marietta, E. L., 1962, Professor of Business Education
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B.Ed., Southern Illinois; M.A., Ph.D., Iowa

Markle, Gerald E., 1971, Associate Professor of Sociology
B.A., M.A., Wayne State; Ph.D., Florida State

Martinson, William D., 1970, Professor of Counseling and Personnel
B.S., Minnesota State; M.A., Minnesota; Ed.D., Indiana

Mascolini, Marcia V., 1977, Assistant Professor of Business Education
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B.A., M.S., Ph.D., Loyola

Mason, A. Thomas, 1972, Assistant Professor of Management
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Mazer, Gilbert K., 1965, Professor of Counseling and Personnel
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McAnaw, Richard L., 1964, Professor of Political Science
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McBeth, John H., 1955, Associate Professor of Business Education and Administrative Services
B.S., Indiana; M.A., Alabama; Ed.D., Michigan State

McCarty, F. William, 1970, Associate Professor of General Business
B.A., DePauw; J.D., Michigan

McCarthy, James F., 1975, Assistant Professor of Music
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McCarville, Michael E., 1968, Associate Professor of Chemistry
B.S., Loras College; Ph.D., Iowa State

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B.S., Western Michigan; M.A., Ohio State; Ph.D., Michigan State

McIntyre, Cecil L., 1976, Assistant Professor of Biomedical Sciences
B.S., Clemson; M.A., Ph.D., Wayne State

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B.Sc., Wittenberg; M.A., Ohio State; Ed.D., Colorado State

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B.A., Millikin; M.A., Illinois; Ph.D., Iowa

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A.B., Michigan; A.M., Wayne State

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B.A., Western Michigan; M.A., Michigan

Meretta, Leonard V., 1945, Professor of Music
B.M., M.M., Michigan

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The Graduate Faculty
Meyer, Charles E., 1966, Professor of Art  
B.A., M.A., Wayne State; Ph.D., Michigan  
Meyer, Ruth A., 1977, Assistant Professor of Mathematics  
B.S., St. Joseph; M.A., Illinois; Ph.D., Wisconsin  
Michael, Jack L., 1967, Professor of Psychology  
B.A., M.A., Ph.D., California  
Micklin, Philip P., 1969, Associate Professor of Geography  
B.A., M.A., Ph.D., Washington  
Middleton, Owen B., 1964, Professor of Education and Professional Development  
B.A., Michigan State; M.A., Michigan; Ed.D., Michigan State  
Miller, George S., 1964, Associate Professor of Education and Professional Development  
B.A., Michigan; M.A., Ed. D., Wayne State  
Miller, Ralph N., 1946, Professor of English  
B.A., Wayne State; M.A., Michigan; Ph.D., Northwestern  
Mitchell, Stephen R., 1973, Executive Vice President and Professor of Political Science  
B.A., Western Michigan; M.S., Ph.D., Wisconsin  
Moore, Daniel L., 1963, Professor of Education and Professional Development  
B.A., M.A., Peabody; Ph.D., Michigan  
Morris, William C., 1961, Associate Professor of Accountancy  
B.B.A., Western; M.B.A., Northwestern; C.P.A., States of Illinois and Michigan  
Morrison, William F., 1959, Professor and Chairperson, Department of General Business  
B.A., J.D., Iowa  
Motimoro, Frederic J., 1967, Associate Professor of Social Science (Arts and Sciences) and Assistant to the Dean for Special Projects  
B.A., M.A., Ph.D., Michigan State  
Moskovis, L. Michael, 1962, Assistant Vice President for Academic Affairs and Professor of Business Education and Administrative Services  
B.S., Miami; M.A., New York; Ph.D., Michigan State  
Motzkin, Dalia, 1977, Assistant Professor of Computer Science  
Mountjoy, Paul T., 1964, Professor of Psychology  
B.S., Lawrence; M.A., Ph.D., Indiana  
Mowen, Howard A., 1949, Professor of History  
B.A., Baldwin-Wallace; M.A., Ph.D., Western Reserve  
Munsterman, Richard E., 1977, Associate Professor of Educational Leadership  
B.S., General Motors Institute; M.S., Ph.D., Iowa  
Nagler, Robert C., 1956, Professor of Chemistry  
B.S., William Penn; M.A., Missouri; Ph.D., Iowa  
Nahm, Andrew C., 1960, Professor of History  
B.A., Andrews; M.A., Northwestern; Ph.D., Stanford  
Nangle, John E., 1964, Assistant Director of Institutional Research and Associate Professor of Psychology  
B.S., Northwestern; M.A., Bradley; Ph.D., Michigan State  
Nantz, Donald W., 1952, Assistant Dean, College of Applied Sciences, and Professor of Industrial Engineering  
B.S., M.S., Stout; Ed.D., Bradley  
Nelson, Arnold G., 1954, Professor of English  
B.A., Hamline; M.A., Ph.D., Minnesota  
Nelson, James D., 1970, Associate Professor of Mathematics  
B.S., M.S., Ph.D., Kentucky  
Neu, Mary E., 1968, Assistant Professor of Art  
B.F.A., M.F.A., Drake  
Neubig, Robert D., 1967, Professor of Accountancy  
B.S., M.B.A., Ph.D., Ohio State; C.P.A., States of New York and Ohio  
Newell, Gale E., 1968, Professor and Chairperson, Department of Accountancy  
B.B.A., M.B.A., Western Michigan; Ph.D., Michigan State; C.M.A.  
Nichols, Nathan L., 1955, Professor of Physics  
B.A., Western Michigan; M.S., Michigan; Ph.D., Michigan State  
Nicolau, Abraham W., 1970, Associate Professor of Special Education  
B.A., M.A., Ph.D., Michigan  
Niemi, Leo, 1955, Professor and Acting Chairperson, Department of Business Education and Administrative Services and Assistant to the Dean, College of Business  
B.S., M.A., Western Michigan; Ph.D., Ohio State  
Nodel, Emanuel, 1961, Professor of History  
B.A., Brooklyn; M.A., Ph.D., Indiana  
Northouse, Peter G., 1974, Assistant Professor of Communication Arts and Sciences  
B.A., M.A., Michigan State; Ph.D., Denver  
Olton, Roy, 1957, Professor and Chairperson, Department of Political Science  
B.A., Ohio Wesleyan; M.A., Ph.D., Fletcher School of Law and Diplomacy  
Oppliger, Larry, 1963, Professor and Chairperson, Department of Physics  
B.S., School of Mines and Metallurgy (Missouri); M.S., Ph.D., Wisconsin  
Orr, Leonard D., 1964, Associate Professor of Marketing  
B.S.E., Michigan; M.B.A., Ph.D., Michigan State  
Osborne, Charles E., 1957, Associate Professor of Music  
B.M., M.M., Ph.D., Michigan State  
Osmun, George F., 1964, Professor of Classics  
B.A., Lafayette; M.A., Columbia; Ph.D., Michigan  
Oswald, Robert M., 1971, Associate Professor of Counseling and Personnel  
B.A., Temple; M.S., Ph.D., North Texas State  
Otteson, Connor P., 1964, Professor of Marketing  
B.B.A., M.B.A., Hawaii; D.B.A., Indiana  
Pagel, Thomas F., 1970, Associate Professor of Communication Arts and Sciences  
B.A., Wayne State; M.A., Pennsylvania; Ph.D., Denver  
Palmatier, Robert A., 1955, Professor and Chairperson, Department of Linguistics  
B.A., M.A., Western Michigan; Ph.D., Michigan  
Passero, Richard, 1966, Associate Professor of Geology  
B.A., M.S., Miami; Ph.D., Indiana  
Patterson, Elizabeth Ann, 1972, Associate Professor of Special Education  
B.S., New York (Buffalo); M.A., Columbia; Ph.D., Syracuse  
Pattison, Dale P., 1963, Associate Professor of History  
B.A., Western Michigan; M.A., Ph.D., Chicago  
Petersen, James C., 1974, Assistant Professor of Sociology  
B.A., M.A., Northern Iowa; Ph.D., Iowa  
Petersen, David K., 1977, Associate Professor of Paper Science and Engineering  
B.S., Michigan State; Ph.D., Denver  
Petto, John W., 1961, Professor of Mathematics  
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Phillips, Claude S., Jr., 1957, Professor of Political Science  
B.A., M.A., Tennessee; Ph.D., Duke  
Pippen, Richard W., 1963, Associate Professor and Chairperson, Department of Biology  
B.S., Eastern Illinois; M.A., Ph.D., Michigan  
Planisek, Robert J., 1976, Assistant Professor of Management  
B.S., M.Ed., Ph.D., Kent State  
Plano, Jack C., 1952, Professor of Political Science  
B.A., Ripon; M.A., Ph.D., Wisconsin  
Poel, Robert, 1970, Associate Professor of Natural Science  
B.A., Kalamazoo; M.A., Ph.D., Western Michigan
The Graduate Faculty

Powell, Andrew F., 1974, Associate Professor of Marketing
  B.A., William and Mary; M.B.A., Ph.D., Michigan State

Powell, James H., 1955, Professor of Mathematics
  B.A., M.A., Ph.D., Michigan State

Pritchard, Michael S., 1968, Associate Professor and Chairperson, Department of Philosophy
  B.A., Alma; Ph.D., Wisconsin

Proctor, Charles L., 1975, Professor of Industrial Engineering
  B.S., Oklahoma State; M.S., Purdue; Ph.D., Oklahoma State; P.E.

Quandi, Eldor C., 1967, Assistant Professor of Geography
  B.A., Valparaiso; M.S., Kansas State; Ph.D., Michigan State

Rao, K. Kameswara, 1975, Assistant Professor of Physics
  B.S., M.S., Ph.D., Andhra; M.S., Ph.D., Wisconsin (Madison)

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  B.A., Queens; M.M., Illinois

Raup, Henry A., 1960, Professor of Geography
  B.A., Kent State; M.A., Ph.D., Illinois

Ray, Harold L., 1960, Professor and Chairperson, Department of Health, Physical Education, and Recreation
  B.A., M.S., Syracuse; Ph.D., Ohio State

Ray, LeRoy R., Jr., 1973, Professor and Director, Black Americana Studies
  B.S., Southern; M.S., Ph.D., Massachusetts

Rayford, Erwin W., 1967, Associate Professor of Industrial Education
  B.S., Wisconsin State; M.E., Ed.D., Missouri

Reid, Kenneth E., 1968, Associate Professor of Social Work
  B.A., Michigan State; M.S.W., Wayne State; Ph.D., Michigan State

Reish, Joseph G., 1972, Assistant Professor of French
  B.A., Georgetown; M.A., Middlebury; Ph.D., Wisconsin

Renstrom, Peter G., 1969, Assistant Professor of Political Science
  B.A., Macalester; M.A., Ph.D., Michigan State

Rhodes, Curtis A., 1966, Associate Professor of Art
  B.F.A., Kansas; M.F.A., Ohio

Rhodes, Steven C., 1975, Assistant Professor of Communication Arts and Sciences
  B.A., Northern Colorado; M.A., Ph.D., Pennsylvania State

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  B.A., Antioch; M.M., Yale; D.M.A., University of Cincinnati College Conservatory of Music

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  B.A., Berea; M.Ed., Illinois; Ed.S., Missouri; Ph.D., Iowa

Richardson, Geraldine, 1967, Assistant Professor of Occupational Therapy
  B.S., Wisconsin; M.A., Western Michigan

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  B.S., Wisconsin; M.S., Kansas

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  B.A., M.A., Western Michigan; Ph.D., Michigan State

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  B.A., Colorado; M.A., Ph.D., Ohio State

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  B.A., M.A., Michigan State

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  B.A., M.A., Ohio State; Ph.D., Purdue

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Rogers, Chester B., 1966, Associate Professor of Political Science
  B.A., M.A., Cincinnati; Ph.D., Northwestern

Ross, Martin H., 1966, Associate Professor of Sociology
  B.S., M.S., Ph.D., Wisconsin

Ross, Myron H., 1961, Professor of Economics
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Rossi, Ernest E., 1966, Associate Professor of Political Science
  B.A., Duquesne; M.Litt., Ph.D., Pittsburgh

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  B.S., Bowling Green State; M.A., Ph.D., Michigan

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  B.A., Augustaana; M.A., Ph.D., Missouri

Schmidt, Richard H., 1955, Professor of Psychology
  B.S., M.S., Ed.D., Oklahoma State

Schmitt, Peter, 1965, Professor of History and Associate Director for Regional Historical Collections
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  B.S., Northern Iowa; M.A., Iowa; Ph.D., Michigan

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