Western Michigan University is located in Kalamazoo, midway between Chicago and Detroit. Three major highways and numerous bus routes connect the city with other midwestern cities. The population of Kalamazoo is 85,800 and of Kalamazoo County is 207,700.

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 Education Amendments, Executive Order 11246 and Executive Order 11375, and Section 504 of the Rehabilitation Act of 1973.

Changes in administration and instruction may be made subsequent to the date of publication.

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<th>Final Registration</th>
<th>Classes Begin</th>
<th>Final Day to Add Classes</th>
<th>Final Day to Drop Classes</th>
<th>Applications for Admission to Graduate College Due for the Summer Session</th>
<th>Diploma Applications Due for August Commencement</th>
<th>Memorial Day Recess</th>
<th>Session Ends</th>
<th>Approved Theses, Projects, and Dissertations Due in Graduate Office for Summer Commencement</th>
</tr>
</thead>
</table>

## Summer Session

<table>
<thead>
<tr>
<th>Year</th>
<th>Final Registration</th>
<th>Classes Begin</th>
<th>Applications for Admission to Graduate College Due for the Fall Semester</th>
<th>Final Day to Add Classes</th>
<th>Final Day to Drop Classes</th>
<th>Independence Day Recess</th>
<th>Approved Theses, Projects, and Dissertations Due in Graduate Office for Summer Commencement</th>
<th>Session Ends</th>
<th>Commencement (6 p.m.)</th>
</tr>
</thead>
</table>

## Fall Semester

<table>
<thead>
<tr>
<th>Year</th>
<th>Advising Day</th>
<th>Final Registration</th>
<th>Classes Begin</th>
<th>Labor Day Recess</th>
<th>Final Day to Add Classes</th>
<th>Final Day to Drop Classes</th>
<th>Diploma Applications Due for December Commencement</th>
<th>Classes Dismissed at 2 P.M. Friday only (Laboratories excepted)</th>
<th>Homecoming (Saturday classes will meet)</th>
<th>Applications for Admission to Graduate College Due for Winter Semester</th>
<th>Thanksgiving Day Recess Begins at Noon</th>
<th>Classes Resume</th>
<th>Approved Theses, Projects, and Dissertations Due in Graduate Office for Fall Commencement</th>
<th>Semester Ends</th>
<th>Commencement (2 p.m.)</th>
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<tbody>
<tr>
<td>Winter Semester</td>
<td>1981</td>
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<td>Final Day to Add Classes</td>
<td>See Class Schedule</td>
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<td>Final Day to Drop Classes</td>
<td>See Class Schedule</td>
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<tr>
<td>Diploma Applications Due for April</td>
<td>February 1, 1981</td>
<td>February 1, 1982</td>
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<tr>
<td>Applications for Fellowships and Associateships</td>
<td>March 1, 1981</td>
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<td>Applications for Admission to Graduate College</td>
<td>March 2, 1981</td>
<td>March 1, 1982</td>
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<td>Due for Spring Session</td>
<td>March 9, 1981</td>
<td>March 8, 1982</td>
<td>March 14, 1983</td>
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<td>Semester Recess</td>
<td>April 17, 1981</td>
<td>April 9, 1982</td>
<td>April 1, 1983</td>
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<td>Classes Resume</td>
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<tr>
<td>Recess</td>
<td>April 20, 1981</td>
<td>April 12, 1982</td>
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<tr>
<td>Classes Resume</td>
<td>April 10, 1981</td>
<td>April 12, 1982</td>
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<tr>
<td>Approved Theses, Projects, and Dissertations Due in Graduate Office for Winter Commencement</td>
<td>April 25, 1981</td>
<td>April 24, 1982</td>
<td>April 23, 1983</td>
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<tr>
<td>Semester Ends</td>
<td>April 25, 1981</td>
<td>April 24, 1982</td>
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</table>
University Officials

Board of Trustees, 
Appointment expiration date
John R. Dykema,  
Grosse Pointe Farms,  
December 31, 1980  
Maury E. Parfet, Chairman,  
Hickory Corners,  
December 31, 1980  
Dr. Julius Franks, Jr.,  
Grand Rapids,  
December 31, 1982  
J. Michael Kemp, Vice Chairman,  
Kalamazoo,  
December 31, 1982  
Robert D. Caine,  
Hickory Corners,  
December 31, 1984  
Mildred L Johnson,  
Muskegon,  
December 31, 1984  
Fred W. Adams,  
Grosse Pointe,  
December 31, 1986  
Charles H. Ludlow,  
Kalamazoo,  
December 31, 1986  
John T. Bernhard, Ex-Officio  
University President

Officers  
Robert W Ethridge, Secretary  
Robert B. Wetnight, Treasurer

Administrative Officers
John T. Bernhard, President  
Elwood B. Ehrle, Vice President  
for Academic Affairs  
Philip S. Denefeld, Associate  
Vice President for Academic Affairs  
L. Michael Moskovis, Assistant Vice  
President for Academic Affairs  
Robert B. Wetnight, Vice President  
for Finance  
Thomas E. Coyne, Vice President  
for Student Services  
Robert W. Hannah, Vice President  
for Governmental Relations  
Chauncey Brinn, Assistant Vice  
President for Governmental Relations  
Robert W. Ethridge, Secretary,  
Board of Trustees  
Martin R. Gage, Executive Assistant  
to the President  
Kenneth M. Smythe, University  
Attorney  
Robert W. Beecher, Assistant Vice  
President and Controller  
Thomas J. Carr, Assistant Vice  
President and Director of  
Auxiliary Enterprises  
Russell Gabler, Assistant Vice  
President (Alumni and Development)  
William J. Kowalski, Assistant Vice  
President (Campus Planning  
and Capital Outlay)  
W. Chester Fitch, Dean, College of  
Applied Sciences  
A. Bruce Clarke, Dean, College of  
Arts and Sciences  
Darrell G. Jones, Dean, College  
of Business  
Richard T. Burke, Dean, Division of  
Continuing Education  
John E. Sandberg, Dean, College  
of Education  
Robert W. Holmes, Dean, College of  
Fine Arts  
Norman C. Greenberg, Dean, College  
of General Studies  
Laurel A. Grotzinger, Dean / Chief  
Research Officer, The Graduate  
College  
William A. Burian, Dean, College of  
Health and Human Services

The Graduate College
Laurel A. Grotzinger, Dean and  
Chief Research Officer  
Rollin Douma, Associate Dean  
for Program Development  
Sid Dykstra, Associate Dean  
for Student Services  
Conrad Katzenmeyer, Associate Dean  
for Research and Sponsored  
Programs  
Lorene Farrand, Administrative  
Assistant to the Dean  
Bilie Donoghue, Administrative  
Assistant for Program Development  
Paula Boodt, Director, Admissions  
and Records
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, 1979, was 20,689, with 3,619 enrolled in eighty-three 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-six 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, Early Childhood 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. Twenty-one other graduate programs at Western also lead to the Master of Arts degree. Anthropology, Art, Biology, Blind Rehabilitation, 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, Biomedical Sciences, Biostatistics, Business, Computer Science, Earth Science, Geology, Librarianship, Manufacturing Administration, Operations Research, Paper Science and Engineering, and Statistics, as well as the Master of Business Administration, Master of Development Administration, Master of Engineering, Master of Fine Arts, Master of Library Administration, 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 Counseling and Personnel, Educational Leadership, School Psychology, and Special Education. 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 nine areas. The Doctor of Education degree is offered in Counseling and Personnel, Educational Leadership, and Special Education; the Doctor of Philosophy degree is offered in Chemistry, Mathematics, Psychology, Science Education, and Sociology. The newest doctoral program, initiated in 1980, is the Doctor of Public Administration.

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 transcript must be received 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.

Regular admission — Degree status

a. Admission is granted to the student who has a bachelor's degree with 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 with a bachelor's degree 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.

Probationary admission — Non-degree status

Probationary admission to nondegree status is granted to the student with a bachelor's degree and 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 "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. PTC status is not available to students with dual enrollment.

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 (ISS). 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 (MTEL) as a basis for determining English language competence (see section on
The Michigan Intercollegiate Graduate study at the host institution, providing standing in a master's, specialist, or Western Michigan University par-
campuses of the other institutions. graduate students of Michigan in-
scholar program which enables Studies (MIGS) program is a guest
Office of International Student Services
institution affords the opportunity to
Western may secure an application
The Graduate College. The normal full-
ten hours of 300 or 400 level courses in a graduate program
One level of courses are offered in
The Graduate College prior to registering
classified as a full-time student. During
the midpoint of each semester or
Student Load
The maximum number of semester hours that may be elected by a full-
time graduate student is fifteen in a semester and fifteen 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 (9-13 hrs.), with at least nine hours needed to be
classified as a full-time student. During the Spring and Summer sessions, the normal full-time load is two courses (5-
8 hrs.), with at least five hours needed to be classified as a full-time student. The normal load for a student with a
Graduate Assistantship or
Associate is two or three courses (6-9 hrs.). A student who is employed should reduce his or her load ac-
cordingly. The normal load for a student employed full time is one course per semester or session.
Course Numbering System
Two levels 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 un-
dergraduates. The work expected from graduates may be of higher quality or
greater quantity or both.
No graduate credit is given for correspondence work.
Undergraduate Credit In A Graduate Program
In certain instances, an adviser may
permit a student to include up to six
semester hours of 500 or 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 interdisci-
Travel of the tuition fee for these courses is the same as the rate for undergraduate
Residency
The following residency policy was adopted by the Board of Trustees of
Western Michigan University on July 20, 1973.
1. Since normally a student comes to
Western Michigan University for the
primary or sole purpose of at-
tending the University rather than
to establish a domicile in Michigan,
one who enrolls in the University as a non-resident shall continue to be
classified as an undergraduate, 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 of
country cannot be registered as a
resident of this state on the basis of
having a resident of this state as a
resident 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.

Refunds And Change Of Class Load
All changes in registration or complete withdrawal must be made in accordance with the procedures published in the Schedule of Classes. A student may not withdraw from graduate courses beyond the midpoint of each semester or session. A student who withdraws from the University or who reduces his or her credit hour load, resulting in lower fees, will be granted a partial refund of the total paid, subject to the following conditions:

1. Changes in student credit hour load prior to the end of the final day for adding a course are considered to be reassessments, and a refund will be granted, in full, for any net reduction in such credit hour load. Alternatively, an increase in credit hour load will result in an upward adjustment of the fee assessment.

2. Reductions in credit hour load after the final day to add a class are not subject to any refund.

3. Complete withdrawal from all courses after the final day to add a course and up through the fifth week of classes in a semester or second week in a session will result in a 50% refund. The refund date is determined by the date the Registrar's Office receives a change in enrollment form from the student.

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. Credit toward a degree program will be granted only for courses in which a grade of "C" or better is earned.

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<th>Grade</th>
<th>Definition</th>
<th>Honor Points Per Credit Hour</th>
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<tbody>
<tr>
<td>A</td>
<td>Outstanding, Exceptional</td>
<td>4.0</td>
</tr>
<tr>
<td>BA</td>
<td>Very good</td>
<td>3.5</td>
</tr>
<tr>
<td>B</td>
<td>High pass</td>
<td>3.0</td>
</tr>
<tr>
<td>CB</td>
<td>Satisfactory, Acceptable</td>
<td>2.5</td>
</tr>
<tr>
<td>C</td>
<td>Adequate</td>
<td>2.0</td>
</tr>
<tr>
<td>DC</td>
<td>Poor</td>
<td>1.5</td>
</tr>
<tr>
<td>D</td>
<td>Failing</td>
<td>1.0</td>
</tr>
<tr>
<td>E</td>
<td>Unofficial Withdrawal</td>
<td>0.0</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>
<td></td>
</tr>
</tbody>
</table>

E — Failure: A student admitted to a degree program must secure three hours of "A" to offset each hour of "E" in his or her graduate record.

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

I — Incomplete: This is a temporary grade given for work which is passing in quality but lacking in quantity to meet course objectives. It is assigned when an instructor, in consultation with a student, concludes that extenuating circumstances prevent the completion of course requirements. Incompletes, except those given in Master's Thesis 700, Specialist Project 720, and Doctoral Dissertation 730, and courses directly related to them, which are not removed within one calendar year will remain part of the student's permanent record.

W — Withdrawal: A grade of "W" is given in a course when a student officially withdraws from that course or from the University before the mid-point of the semester or session.

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

**AUD** — Audit: The symbol "AUD" is used to indicate that a student has enrolled in a course as an auditor.

**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 graduate 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**

Western Michigan University provides fellowships and assistantships 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 $4,000 per academic year 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.

2. **Dean's Research Assistants** of $4,000 per academic year are offered to graduate students to assist graduate faculty members in their research projects. Assistants will be selected on the basis of the research skills and interests of the applicants.

3. **Doctoral Associateships** of $5,000 per academic year 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. **Thurgood Marshall Assistantships** of $5,400 per academic year 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.

5. **Graduate Work-Study Assistantships** of up to $4,000 per academic year are available in many departments of the University. Inquiries should be sent to the chairperson of the department.

6. **Teaching and Research Assistantships** of $4,000 per academic year are available in many departments of the University. Inquiries should be sent to the chairperson of the department.

**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—as payment for service (salary) or as a gift (stipend) 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. A student with a full appointment is not permitted to have other employment.

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**

   Fellows are students who have distinguished themselves by outstanding academic achievement or special abilities. Fellowships are provided by the University or by another donor with the approval of the University. The fellowship grant (stipend) is a gift to help the Fellow achieve an educational goal, rather than a payment for services.

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 and precludes other employment. 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. (Western Michigan University Policy Handbook: Statement on Professional Ethics)

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 continuance 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 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.

b. University housing: Graduate appointees will be accorded priority in securing University housing in residence halls or family housing apartments (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 (Western Michigan University Policy Handbook).

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 to 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 format required 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. Department of Education and are subject to periodic revision.

Application procedures for the College Work-Study Program, the National Direct Student Loan Program, and the Office of Financial Aid Graduate Assistant-ship Program:
- Submit either a Financial Aid Form (FAF) or a Family Financial Statement (FFS) to the appropriate financial aid office or the Office of Student Financial Aid and Scholarships at Western Michigan University.
- Submit any additional information requested by the WMU Office of Student Financial Aid and Scholarships.
- No WMU Aid Application is used or required for these programs.

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 between 10-20 hours per week while attending school and up to forty hours per week during vacation periods.
b. National Direct Student Loan (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 a cumulative total of $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 repayment start nine months after leaving college. The minimum monthly repayment is $30. Part or all of the loan is forgiven for those teaching in specified areas, under stated provisions partial cancellation is also provided for military service. Repayment may be deferred up to three years while in service in the Armed Forces, or as a volunteer in the Peace Corps or VISTA.

c. Federally Insured Student Loan Program (Guaranteed Student Loan—GSL): The Federal government guarantees loans made by private lending institutions to graduate students who are enrolled as at least one-half time students. A cumulative maximum of $15,000 may be borrowed including both undergraduate and graduate (maximum of $5,000 per year) loans. These loans bear a seven percent simple interest rate which is the obligation of the student borrower. Federal legislation provides that a student borrower pays no interest while in attendance as a one-half time student or better at an eligible institution or for nine months thereafter. Applications for this program must be obtained from a student’s local lending institution, (Bank, Credit Union, or Savings and Loan Association). The names of participating lending institutions can be obtained from the Financial Aid Office at your present college or (for Michigan residents only) at the WMU Office of Student Financial Aid and Scholarships.

d. State Direct Student Loan (SDSL): The Michigan Higher Education Student Loan Authority was created to provide a source of guaranteed loans (State Direct Loan Program) to legal residents of Michigan who are unable to secure guaranteed loans from private lending institutions. Students accepted for enrollment or enrolled in good standing at WMU may apply at the Office of Student Financial Aid and Scholarships for loans to help pay educational expenses. Graduates may borrow up to a cumulative maximum of $15,000 including loans as an undergraduate for graduate and professional study. The maximum loan for any academic year cannot exceed $2,500 or the total cost of education less other financial aid received, or be more than 50% of the total educational costs for the year involved as determined by WMU whichever is less. The Michigan Higher Education Student Loan Authority will determine the amount of each loan after consideration of WMU’s recommendation. Contact WMU’s Office of Student Financial Aid and Scholarships for further details.

e. United Student Aid Fund Program (USAIF): Non-residents of Michigan unable to obtain a federally guaranteed loan in their own state should check with their local lending institution to learn if it participates in this program. The conditions of this program are the same as for the federally insured loan program. The names of participating institutions can be obtained from United Student Aid Funds, Inc., 5259 North Tacoma Avenue, Indianapolis, Indiana 46220.

f. Short-Term Loan: The loan funds provide emergency assistance for enrolled full-time or part-time graduate students to meet educational expenses. These loan funds have been established by University friends, alumni, faculty, and staff. Many of these funds provide loans for a maximum of six months at interest of five percent. Some funds restrict loans to students in certain curricula, of various academic ranks, from a given geographical location, etc. Application for these loans must be made in person at the Office of Student Financial Aid and Scholarships.

g. Law Enforcement Education Program (LEEP): This federal program was established in 1969 to encourage persons interested or engaged in law enforcement to pursue studies in higher education beneficial to them in this profession. Law enforcement involves “all activities pertaining to crime prevention or reduction and enforcement of the criminal law.” Grants up to $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 or the “Criminal Justice Program,” offered by the Sociology Department. Loan recipients must be employed in, or intend to enter, the “Law Enforcement” profession. Applications are obtainable from WMU’s Office of Student Financial Aid and Scholarships.

2. Non-Federal Financial Aid Programs:

a. Monthly Education Payment Plans: Western Michigan University has approved two monthly payment programs which provide parents with the opportunity to borrow from $400 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:

   Insured Tuition Payment Plan
   6 Saint James Avenue
   Boston, Massachusetts 02116

   The Tuition Plan
   Concord, New Hampshire
   03301

b. Off-Campus Employment: Students may find work through numerous local employers in and around the city of Kalamazoo. Students looking for work can receive assistance through the Student Employment Referral Service in Ellsworth Hall. The Student Employment Referral Service actively seeks out employment opportunities for students within the Kalamazoo area. When arriving on campus, students seeking employment are encouraged to contact this office.

c. On-Campus Employment: A large number of students are employed by the various areas and departments of the University. Each handles its own student employment program. Areas and departments are requested, but not required, to list job vacancies with the Student Employment Referral Service. These employment opportunities can best be secured by direct contact with the areas and departments.
opportunities for students within the campus. When arriving on campus, each department handles its own student employment program. These employment opportunities can best be secured by direct contact with departments. Departments are asked, but not required, 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
The Academic Records Office on the third floor of the Seibert Administration Building certifies veterans under the G.I. Bill and its extensions. The Veterans Administration maintains an office on campus at 843 Steers Avenue. The telephone number is 383-8151. The areas of assistance include but are not limited to, veterans educational benefits, vocational rehabilitation benefits, flight training benefits, and tutorial assistance. Veterans may contact this office to initiate G.I. benefits. If difficulties or problems arise in receiving benefits, the veteran is strongly advised to contact this office.

Changes in enrollment or current address must be reported immediately to the Academic Records Office. Proof of a change in dependents should be sent directly to the V.A. Regional Office in Detroit. Forms may be obtained at the Academic Records Office.

The Family Educational Rights and Privacy Act
The Family Educational Rights and Privacy Act of 1974 is a Federal law which states (a) that a written institutional policy must be established and (b) that a statement of adopted procedures covering the privacy rights of students be made available. The law provides that the institution will maintain the confidentiality of student education records.

Western Michigan University accords all the rights under the law to students who are declared independent. No one outside the institution shall have access to nor will the institution disclose any information from student education records without the written consent of students except to personnel within the institution, to officials of other institutions in which students seek to enroll, to persons or organizations providing students financial aid, to accrediting agencies carrying out their accreditation function, to persons in compliance with a judicial order, and to persons in an emergency in order to protect the health or safety of students or other persons. All these exceptions are permitted under the Act.

Within the Western Michigan University community, only those members, individually or collectively, acting in the students’ educational interest are allowed access to student education records. These members include faculty, administration, clerical and professional employees, and other persons who manage student record information (e.g., Office of the Registrar, Academic Records Office, Controller, Financial Aid, and the Office of Admissions).

At its discretion the institution may provide directory information in accordance with the provisions of the Act to include: student name, address, telephone number, date and place of birth, curriculum and major field of study, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student, participation in officially recognized activities and sports, and weight and height of members of athletic teams. Students may withhold directory information by sending a written request to the Academic Records Office in writing within the official drop-add period of each semester or session.

The law provides students with the right to inspect and review information contained in their education records, to challenge the contents of their education records, to have a hearing if the outcome of the challenge is unsatisfactory, and to submit explanatory statements for inclusion in their files if they feel the decisions of the hearing panels to be unacceptable. The Registrar at Western Michigan University has been designated by the institution to coordinate the inspection and review procedures for student education records, which include admissions, personal, academic, and financial files, and academic, cooperative education, and placement records. Students wishing to review their education records must make written requests to the Registrar. Only records covered by the Act will be made available within forty-five days of the request. Students may have copies made of their records with certain exceptions, (e.g., a transcript of an original or source document which exists elsewhere). These copies would be made at the students’ expense at the prevailing rate of ten cents per page. Education records do not include records of instructional, administrative, and educational personnel which are the sole possession of the maker and are not accessible or revealed to any individual except a temporary substitute, records of the law enforcement unit, student health records, employment records or alumni records. Health records, however, may be reviewed by physicians of the students’ choosing.

Students may inspect and review the following as outlined by the Act: financial information submitted by their parents, confidential letters and recommendations associated with admissions, employment or job placement, or honors to which they have waivered their rights of inspection and review, or educational records containing information about more than one student, in which case the institution will permit access only to that part of the record which pertains to the inquiring student. The institution is not required to permit students to inspect and review confidential letters and recommendations placed in their files prior to January 1, 1975, provided those letters were collected under established policies of confidentiality and were used only for the purposes for which they were collected.

Students who believe that their education records contain information that is inaccurate or misleading, or is otherwise in violation of their privacy or other right may discuss their problems informally with the person in charge of the records involved. If the decisions are in agreement with the students’ requests, the appropriate records will be amended. If not, the students will be notified within a reasonable period of time that the records will not be amended and will also be informed of their right to a formal hearing by the Registrar. Students may then request a formal hearing which must be made in writing to the Registrar who, within ten days after receiving such requests, will inform students of the date, place, and the time of the hearing. Students may present evidence relevant to the issues raised and may be assisted or represented at the hearings by one or more persons of their choice, including attorneys, at the students’ expense. The hearing officer who will adjudicate such challenges will be the Registrar, or a person designated by the Registrar, who does not have a direct interest in the outcome of the hearing. Decisions of the hearing officer will be final, will be based solely on the
2. Policies and Procedures

1. Introduction

The University endorses as a guideline for its 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 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) credit/no credit, or (d) any other grade used by the Records Office.

7) If the Committee decides that there should be no change of grade they will so inform the student, the faculty member, the department 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 advisers’ recommendations, and students will not be held responsible for errors made by their advisers. This section is not to be interpreted to mean that the student is relieved of the responsibility of meeting the total graduation requirements stated in the catalog in force at the time he/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 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 over 1,700,000 items including books, bound periodicals, music scores, maps, documents, and materials in microform. Nearly 11,000 periodical and serial titles are currently received. The Library system is a depository for United Nations 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 housed with the regular collection include:

1. The Ann Kercher 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 Kercher 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.

Special collections which are housed separately include:

1. 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.
2. The Collier Studies Library provides rare and specialized resources for the in-depth study of the medieval period in history. Its support of the programs of the University’s Medieval Institute is supplemented strongly by the holdings of material on the history, religion, and philosophy of this era which are a part of the main library collection.
3. The C. C. Adams Ecological Collection consists of the personal collection and papers of the pioneer American ecologist, Charles C. Adams.
4. The microfilm collection of over 425,000 contains such items as the Human Relations Area File, the American Periodical Series, the Newsbank Urban Affairs Library, Early American Newspapers, maps, and 300,000 periodical and serial titles.
5. The Map Library, a unit of Reference Services, holds some 150,000 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 22,000 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 52,000 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 315,000 bibliographic items and receives over 600 periodical titles. This 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 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 for finding information in the various subject fields.

An on-line automated retrieval system (OARS) offered by the Library accesses some 150 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 retrieval basis. Inquiries about this service may be made at the Reference Desk in the main library and at all branch libraries.

The Library also provides library service to students enrolled in off-campus classes, usually through arrangements with libraries or schools in the locality where the classes are taught.

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 three and a half million volume collection located in Chicago. The Center operates as a cooperative library for less-used but important research materials such as Asian trade statistics, domestic and foreign newspapers, microfilm copies of French books published before 1801, 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 copiers are available at the Waldo Circulation Desk, and at the Business Library and the Educational Resources Center Library.

Graduate students engaged in projects requiring extensive use of library resources may apply in writing to the Circulation Office of Waldo Library for assignment of a special locker or a locked carrel in Waldo Library. Assignments are made for one semester; application forms are available at the Waldo Library circulation desk.

**Housing**

All students enrolled at Western Michigan University are permitted to live in housing of their own choosing. However, students are encouraged to give consideration to the educational and social benefits of living in a residence hall or a student family apartment as well as the convenience of being close to their classes and other University activities.

**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 group participation and leadership development 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 in-district assignment details from the Manager of Residence Hall Facilities, Student Services Building. Admission to the University does not carry a guarantee that a residence 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. Inasmuch as all residence halls, except Spindler, close for the periods between semesters and sessions, residents of these halls who must remain make their own alternate housing arrangements during this period.

Residents are permitted to remain in their assigned rooms during the Thanksgiving and March recess periods.

Most of the residence halls furnish 20 meals per week (Sunday evening excluded), with the dining rooms open from 7:00 a.m. to 6:15 p.m. six days a week, and 8:00 a.m. until 1 p.m. on Sunday. The food service enjoys an excellent reputation with an extensive menu developed in consultation with professional dietitians and residents. Food service residence halls are available during the fall and winter semesters and spring session. During these periods meals usually begin the day classes start and stop the last day of classes. Meals are not served during the Thanksgiving period.

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 over 6,000 students each Fall/Winter term. 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.

Both undergraduate and graduate students are welcome in all halls. Students most often prefer a specific hall because of its individual assignment pattern (co-ed). During the fall and winter semesters graduate and older students find Walwood Hall, a coed non-food hall on main campus of special interest. Students must be 21 or older to live in Walwood Hall and must be 21 or of junior standing to live in Davis. 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.

**Family Housing**

The 590, off-campus apartments provide convenient, inexpensive housing for many student families. Married couples, widowed, divorced, single parents, children, and single parents with dependent children are eligible to reside in Family Housing. The one- or two-bedroom style apartments are available in either furnished or unfurnished condition. Approximately 1,500 students, spouses, and children live in the apartments on a year round basis. It is our experience that these families have similar economic and social circumstances. This makes for pleasant relationships among neighbors, and often, friendships are formed which exist long after a family leaves campus. Reciprocal babysitting arrangements can usually be worked out with a neighbor. New families are quick to find their niche in the Family Housing community.

Assignments are made based on the date of application; therefore, the earlier a person applies the better the chances are for receiving an assignment. Early application is encouraged and may be submitted before official admission to the University. All inquiries should be made directly to the Family Housing Office, Student Services Building. Telephone (616) 383-4970.

**Off-Campus Housing**

Approximately 7 percent of Western's student enrollment live off-campus in privately owned housing. Thus, a unique service is provided to assist them in locating a place to live. It registers approximately 2,500 rental units ranging from modest sleeping rooms to luxurious apartment complexes. Rental listings of apartments, houses, and sleeping rooms are maintained and printed for distribution. Listings of students in need of roommates as well as roommates available are updated regularly and used extensively by the thousands.
of students who live off-campus and share their housing costs. While most students look forward to off-campus living as an opportunity to pursue individual life styles, their experiences are often plagued by strained roommate relations and rental difficulties that interrupt their academic achievement. Recognizing the significance of an adequate housing environment for all students, the University's rental listing program is supplemented with tenant counseling and educational programs as well as tenant/landlord services. For additional information regarding off-campus housing, contact the Office of Community Student Services, Room 3510, Student Services Building.

Sorority/Fraternity Housing
Privately owned and operated by various fraternity organizations for their members. For information contact the Office of Student Activities, Student Services Building.

University Health Center
The Western Michigan University Health Center is a student-oriented health center, established to provide for the general health care needs of University students. Optimum health and the means for maintaining that health are an integral part of the student services support programs necessary for students to learn, study, and grow from all the experiences encountered during college years.

The University Health Center endeavors to furnish sympathetic, personalized, quality medical care within a clinic setting, offering all examinations and treatments provided by a private physician with the additional advantages of laboratory, x-ray, and pharmacy facilities.

All medical staff involved in student evaluation and care have a concern for student health needs. All have chosen college health as their primary interest and responsibility. Present staff include Family Practice physicians, Physician's Assistants, and specialist physicians in the fields of gynecology, dermatology, orthopedics, and psychiatry. All physicians are Board Eligible or Board Certified.

The Health Center encourages students to choose a physician or physician's assistant with whom they feel comfortable and to continue to request that professional through appointments whenever medical care or advice is needed. Choosing a health care professional allows a student greater opportunity for personalized, well-informed health care.

Utilizing University Health Center Services
Each student attending the University is required to have a Health History Questionnaire on file with the Health Center. This questionnaire helps to insure continuity of health care between home and the University and provides Health Center staff with immediate access to past medical information related to current illness, injury, or health maintenance needs.

The Health Center questionnaire is sent to each student by the Admission's Office with the individual's notification of acceptance as a student. Students with special physical problems who may encounter difficulty fulfilling the University requirements for physical education should attach a short explanation of the disability or major health problem to the questionnaire. For evaluation of limitations of a disability, a student should contact the Health Center for an appointment during his or her first semester on campus.

A Western Michigan University Student Health Fee is assessed to all enrolled students taking classes on campus each semester and session. All-time students (those carrying five or more hours a semester or three or more hours a session) are assessed the full fee for which they receive all University Health Center services at no charge, no matter how many times they need them.

Part-time students (those students carrying less than five hours a semester or three hours a session), are assessed a lesser fee. This fee covers routine physician visits, but all other Health Center services are rendered on a "fee for service" basis. Part-time students may elect to pay the difference between the lesser fee and the full Student Health Fee and utilize the Health Center services at no further charge.

Spouses of students may use the University Health Center on a "fee for service" basis or pay the full Student Health Fee and be eligible for all services at no further charge.

Any student who is eligible to enroll (has carried at least one hour during the previous year) can use the Health Center on a "fee for service" basis or can pay the full Student Health Fee. Recently graduated students are allowed to use the Health Center for one semester (or two sessions) after graduation in order to allow time to establish a permanent source of medical care.

Any student or spouse choosing to pay the full Student Health Fee must do so within the first three weeks of a semester or the first week of a session and must pay the fee at the University Health Center.

All students enrolled in the University are entitled to Health Center services during the term in which they are enrolled up to the first day of the next semester or session.

Note: University Health Center is not presently staffed to provide care for children of students.

The Student Health Fee, assessed in full at the beginning of each semester or session, covers all services rendered within the University Health Center. This includes all office visits, all physical examinations required for employment or preventive health care, medical specialties of gynecology, dermatology, orthopedics, and psychiatry, laboratory studies, x-rays, casts, medical supplies, minor surgical procedures, allergy injections, TB testing, immunizations for prevention of contagious disease or overseas travel, and all Health Education classes and learning opportunities.

Allergy injections: Students who require allergy injections and who have obtained their antigen and an injection schedule from their private physician may have these substances stored at the Health Center and the injections administered at no additional charge. Students not covered by the full Student Health Fee will be charged a minimum amount for each injection.

Pharmacy Services: The University Health Center Pharmacy is open during regular clinic hours and is available for use by students, spouses of students, faculty, staff, and emeriti. All pharmaceuticals, both prescription and non prescription, are offered at reduced rates. Prescriptions written by either University Health Center staff or any private physician may be filled at the University Health Center Pharmacy. Prescriptions from outside physicians, however, must be an original written order. Prescription containers from pharmacies cannot be used to obtain refills.

The University Health Center is open 24 hours a day, seven days a week during the academic year (Fall and Winter Semesters). Regular clinic hours are from 7:45 a.m.-11:30 a.m. and 1:00 p.m.-4:45 p.m. Monday thru Friday, and Saturday mornings from 9:00 a.m.-11:30 a.m. During these times, physicians and physician's assistants are available for office visits.

Students are seen by making an appointment with the professional of their choice, or on a "walk-in" basis. Students with appointments are seen as scheduled; walk-in students are seen when time between appointments is available. Appointments are strongly encouraged to reduce waiting time and maybe made up to two weeks in advance by calling the Health Center at 383-6005, Monday thru Friday from 7:45 a.m.-4:45 p.m. If an appointment cannot be kept, it is requested that a student call to cancel it so that his/her time period may be used by another student.

The University Health Center is also staffed twenty-four hours a day, seven days a week during the academic year for sudden illness or minor emergencies. If students become ill in
the evening after clinic hours or during the night or weekends, they can call or come directly to the emergency entrance on the south side of the building.

A validated student identification card must be presented when utilizing the University Health Center Services. Clinic hours during Spring and Summer sessions and semester breaks may differ from those during the academic year. Students will need to check with the Health Center for specific clinic hours during these times (call 383-6006 for questions or information).

In cases of acute illness or serious accident, a student patient may be taken to the Health Center or the emergency room of a local hospital. Students who require medical care and laboratory examinations which cannot be performed at the Health Center will be referred to a local clinic or hospital. When a student is transferred to a hospital, the nearest relative or friend will be notified as early as possible.

No operative procedures will be performed on students under the age of 18 without permission of the parents, except in cases of extreme emergency or life threatening situations. Costs related to hospitalization, including fees of outside consulting physicians, are the responsibility of the student or parent.

**Student Health and Accident Insurance:** To cover some medical expenses which may be incurred, it is advisable to maintain adequate health and accident insurance policy. Most parents have such coverage, however, it is advisable to review the provisions of the policy regarding dependent’s age and college attendance. A group health and accident policy is offered to students through the University at a modest premium and may be applied for when a student is admitted to the University.

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, are required to maintain adequate health and accident insurance coverage while they are enrolled. This University policy is supervised by the Office of University Judicaries. Foreign students who have adequate insurance in effect at the time they register should notify the Office of University Judicaries of their existing coverage. Those who do not present proof of existing coverage will be automatically enrolled in the University’s Student Health Insurance Plan. Information on other acceptable insurance programs for foreign students is available in the Office of International Student Services.

**Location:** The Health Center is located on the west side of Gilkison Drive, north of Michigan Avenue. The emergency entrance is on the south side of the building, just west of the main entrance.

**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, career information library, on-campus interviewing, weekly job opportunities bulletin and 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 Analogy 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 foreign countries. 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 in 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 two years 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 85%. 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: An overall point-hour ratio of 3.0 (A = 4) is required. 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 who intends to register for the Master's Thesis (6 hrs.) is required to meet with the Administrative Assistant for Graduate Programs in The Graduate College before registering for the class in order that the student is informed about the regulations pertaining to the preparation of the manuscript.

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 B.A., except the English Qualifying Examination.

General Requirements For A Graduate Specialty Program

A Graduate Specialty Program is a fifteen to twenty hour, normally aggregate of cohesive, topical graduate courses and, as a unit, independent of any single degree program. Some individual courses within a graduate specialty program may, however, like all independent graduate courses, be applicable to the requirements of a degree program and may be elected to fulfill those requirements. The entire aggregate of courses in a Graduate Specialty Program, though, cannot be applied to a degree program. If a student possesses a graduate degree or enrolls concurrently in a Graduate Specialty Program and a degree program, some of the required courses in the Graduate Specialty Program will be in addition to the courses required for the degree program. To signify that a student has completed satisfactorily the approved curriculum in a Graduate Specialty Program, a certificate is awarded; however, the certificate is not an award of license, accreditation, or certification to render professional services.

Regular admission to The Graduate College and to the unit offering the Graduate Specialty Program is required. A student must complete the requirements of the Graduate Specialty Program with a "B" or better average within a six-year period. The Graduate Specialty Programs offered by Western Michigan University are described on pages 51 and 52.
Programs Leading To The Master's Degree

Accountancy
John D. Sheppard, William R. Welke, 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.

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 archaeology, sociocultural 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 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 remainder 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

J. Mohr, Adviser
Room 1411, 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: J. Mohr, Room 1411, 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.

Program requirements
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
J. Mohr, 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.

Program requirements
1. Twenty-four hours in the major area of concentration.
2. Nine hours in art history.
3. Twelve hours in electives, of 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 includes a final 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.
   a. ED 600, Fundamentals of Measurement and Evaluation in Education.
   b. ED 602, School Curriculum
   c. ED 603, Social and Psychological Foundations
   d. ED 604, Psychological Foundations of Education
3. Six hours of electives in major field of education.

Biology

Richard Brewer, Adviser
Room 201, Wood Hall

The Master Of Arts degree program in Biology is designed to enhance the student’s ability to conduct research, including the presentation of findings, as well as to provide additional coursework in the area of Biology selected. Specialization is available in most areas of biology, but the areas of greatest strength in our department are Aquatic Biology, Botany, Ecology, Physiology (Plant and Environmental), Zoology (especially Invertebrate, Oecology 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 Graduate College. Foreign students should also apply to the Office of International Student Services.
2. At least one course in each of the following: Botany, zoology (or two semesters of general biology), ecology, genetics, and physiology.
3. Two semesters of mathematics, including some calculus.
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 approved related areas (no more than eight hours outside the Biology Department).
   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 (no more than eight hours outside the Biology Department).
   b. BIOL 710. Independent Research (6 hours).
   c. The student shall satisfy the Advisory Committee of his or her ability to gather, analyze, interpret, and present research data.

### Biomedical Sciences

**Leonard Beuving, Adviser**
Room 232, 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.

### Biostatistics

**Michael R. Stoline, Adviser**
Room 3319, Everett Tower

The objective of this program, which leads to the Master of Science degree, is to prepare students for 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 faculty in the Departments of Biology and Biomedical Sciences. The program requires an equivalent of thirty-six credit hours of graduate work, including a ten credit hour internship experience. A student may be credited for some of these courses (or equivalent) already completed as an undergraduate. However, a minimum of thirty-three credit hours of course work is required in the program, including the internship.

**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 sciences, or a minor in biology or biomedical sciences 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 (BIOL 250 or BIOL 302), physiology (BIOL 350 or BIOL 317 or BIOL 527), microbiology (BIOL 312) or sufficient undergraduate coursework so that three 500-level biology courses or three 500-level biomedical sciences courses can be taken in the graduate program.
2. Mathematics and Computer Science: Multivariate calculus (MATH 272), differential equations (MATH 274), elementary linear algebra (MATH 230), probability (MATH 460 or MATH 560), intro. FORTAN programming (CS 306).
3. Chemistry: Organic chemistry (CHEM 360 or 365), biochemistry (CHEM 450).

**Admission Procedures**
1. Applications for admission to the program for the Fall Semester must be received by the preceding March 1.
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.
   b. availability of internships.
   (Admission to the program is limited by the number of internship opportunities available.)
3. A promising student may be admitted to the program with deficiencies in the Admission Requirements and be required to complete this work as extra program requirements.
4. Students are urged to submit scores received on the Graduate Record Exam (GRE).

**Program Requirements**
1. **Statistics Component** (14 credit hours): Math 562 (Statistical Analysis), Math 660 (Statistical Inference I), Math 662 (Applied Linear Models), Math 664 (Design of Experiments I).
2. **Computer Science Component** (3 credit hours): CS 506 (Scientific Programming).
3. **Biology or Biomedical Science Component** (6 credit hours): Two approved 500-level biology courses or two approved 500-level biomedical sciences courses. These courses are chosen to fit a student’s individual interest.
4. **Elective** (3 credit hours): an approved 500-600 level course from Statistics, Biology, or Biomedical Science.
5. 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.) Completion of MATH 664 is recommended before the internship.

6. Final Examination: Before beginning the internship, each intern must have successfully passed a written comprehensive examination covering the material of Math 562, 660, and 662.

7. 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 Special Education and Rehabilitation Services Department of Education, 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.

All Orientation and Mobility students must possess the ability to consistently monitor the environment and the visually impaired clients to ensure their safety. This should be done at an adequate distance so as not to influence the interaction of visually impaired persons with the public and physical environment.

Students are admitted into the program 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-seven semester hours is required to earn the degree of Master of Arts.

Rehabilitation Teaching

Advisers: Donald Blasch, Room 3406, Sangren Hall
Ruth Katarzela, 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 knowledges 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 advisor. 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.

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 courses, the WMU BBA core courses, or the equivalent), by examination, or by taking Computer Usage 102. Principles of Accounting 210, 211, Principles of Economics 201, 202, Business Finance 320, Legal Environment 340, Management Fundamentals 300, Marketing 370, and Statistics 200. 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
   - Financial Management 608
   - Marketing Management 607
   - Policy Formulation and Administration 600
   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 the area advisors.

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.

Master Of Science In Business
The Master of Science program permits the student to specialize in specific areas of business such as Accounting, Administrative Services, Finance, Management, or Marketing.

The program is designed primarily to permit exceptional students to work on individualized programs, generally in preparation for further academic studies. It is a departmental program and specific admissions and course requirements are determined by the department.

Admission requirements
Applicants must submit scores for the Graduate Management Admission Test (formerly known as the ATGSEB) prior to consideration for admission to the program, successfully complete the English Qualifying Examination prior to admission, and also meet undergraduate major/minor requirements specified by the departments, which may be higher than the Graduate College’s minimum requirements.

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

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

2. A departmental concentration of a minimum of twenty-one semester hours, including the satisfactory completion of a research methodology course, and a Master’s Thesis (6 hrs.) or a major research project assigned by the department.

3. 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 MSB program.

Business Education
Contact Dept. Office for Advising Room 211, West Hall

The thirty-hour Master of Arts degree program in the Teaching of Business Education combines professional education courses with advanced preparation in functional area of business. The professional education sequence is offered by the College of Business and the Department of Education and Professional Development provides competencies in curriculum development, foundations of education, research skills, and seminars and improvement of instruction courses in teaching business subjects (emphases include office education, consumer education, accounting, and the socio-business core area).

Admission requirements
Students with an undergraduate major or minor or the equivalent and who meet the admission requirements of the Graduate College may apply for admission into the program.

Program requirements
In addition to a professional education sequence, 15 hours of electives (chosen in consultation with the graduate adviser) allows students to select courses consistent with the various curricula of Business Administration, Business Education, Accountancy, Business Law, Finance, Management, and Marketing.

Because individualized programs are planned to fulfill student career goals, program emphasis may be placed on secondary or community college instruction, as well as business and education administrative positions. Programs may also be planned which students fulfill requirements of secondary teaching certification and/or office vocational endorsement while completing the master’s program.

Chemistry
Don C. Illwand, Adviser
Room 5110, McCracken Hall

The Master of Arts degree program in Chemistry is planned to provide a broad background in the various fields of chemistry with concentration in one. Entrance requirements include admission to the Graduate College and the passing of qualifying examinations covering 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 Chemistry course is not permitted unless the appropriate qualifying examination has been passed.

The student is required to elect twenty to twenty-four hours in the field of Chemistry, including the Master’s Thesis, and thirty to thirty hours in a related field or fields and to pass a final oral examination administered by the student’s graduate committee. The course sequence will include (if not previously elected):

1. Nine hours of 600-level courses from at least three of the following divisions, including one course in the division of the Master’s Thesis: Analytical, Biochemistry, Inorganic, Organic, and Physical.

2. CHEM 505, Chemical Literature.

3. CHEM 506, Chemical Laboratory Safety.

4. CHEM 520, Instrumental Methods in Chemistry and either CHEM 510, Inorganic Chemistry or CHEM 550, Biochemistry I, or CHEM 552, Biochemistry and Laboratory Safety.

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

6. CHEM 700, Master’s Thesis (6 hrs.). The requirement for any of the above 500-level courses is waived if the student has taken a corresponding course as an undergraduate.

The student is required to pass a final oral examination administered by the student’s graduate committee. The student is also required, as part 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

Shirley A. Van Hoeven, Adviser
317 Sprau Tower

Master Of Arts In Communication Arts And Sciences

The Master of Arts degree program in Communication Arts and Sciences has two options: Option A—General Communication and Option B—Organizational Communication. The option in General Communication provides for a highly flexible program designed to fit a wide variety of student needs in several areas of communication. The more specialized option in Organizational Communication is designed for those students whose vocational interests involve using communication in an organizational setting. Individual programs are designed in consultation with the graduate adviser based on a student’s needs, interests, and vocational objectives.

Admission Requirements

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.

OPTION A—GENERAL COMMUNICATION

The general degree option in Communication Arts and Sciences will be of interest to students desiring a terminal program or those contemplating postgraduate study. Students currently may choose to pursue interests in one or more of the following areas: communication education, mass communication theory, communication theory, interpersonal communication, and organizational communication.

Program Requirements

1. A minimum of thirty semester hours must be completed in Communication and cognate course work. Selection is to be made in consultation with the Graduate Adviser.

2. Each semester the student is enrolled, he/she must consult with the Graduate Adviser.

3. A Master’s Thesis (6 hrs.) is optional.

OPTION B—ORGANIZATIONAL COMMUNICATION

The Organizational Communication option is designed for those students desiring an understanding of the communication process in organizations, the nature of relationships among its members, and a knowledge of the preparation and presentation of messages. The program will prepare individuals for positions in public relations and informative services, and for such positions as the directors or coordinators of communication in organizations.

This program is also designed for those currently in the field of organizational communication—that is, individuals holding (or expecting to hold) positions in organizations which require high levels of communication activity and ability. Training for such positions involve the development of effective communication in functioning organizations as well as dealing with non-routine matters such as: (1) facilitating the flow of ideas and personnel contacts among those individuals and groups concerned with the development of new projects such as action research programs; (2) coordinating diverse members and groups for organizational projects; (3) coordinating efforts to resolve conflicts among individuals and groups within the organization; and, (4) implementing and regulating the flow of messages to and from the organization in its relations with other organizations.

Course work combines communication theory and social scientific methods in the exploration of how information is exchanged and relationships are developed and maintained in effective organizations.

Program Requirements

The option in organizational communication includes thirty hours of academic course work and six hours of an applied research project or internship. The thirty hours consist of a core of recommended courses in Communication Arts and Sciences which focus on specific organizational communication dimensions, selected cognate courses in other departments to provide greater depth and breadth in organizational theory, and additional selected courses in interpersonal, organizational or mass communication, depending on the student’s needs and objectives. The six hour research project or internship is the application of the student’s course work in communication theory and research in a specific organizational setting.

The program requirements are:

1. Completion of thirty-six semester hours of course work chosen in consultation with the student’s Advisory Committee.

2. A recommended core of fifteen hours:
   - CAS 547. Organizational Uses of Radio and Television (3)
   - CAS 549. Public Relations and Organizations (3)
   - CAS 581. Communication in Organizations (3)
   - CAS 582. Group Problem Solving (3)
   - CAS 673. Conflict Management (3)
   - Additional courses in CAS will be selected based on student needs and vocational objectives.

3. A minimum of six hours of cognate course work in organizational theory selected from the following:
   - PSCI 534 Administrative Theory
   - SOC 503 Social Systems Theory and Analysis
   - SOC 575 Industrial Sociology
   - SOC 576 Sociology of School Organization
   - SOC 673 Formal Organization
   - EDLD 661 Human Relations—Supervisor
   - SWRK 630 Social Change Theory and Community Analysis
   - SWRK 632 Organizational Theory for Human Service Management
   - MGMT 651 Analysis of Administrative Behavior
   - MGMT 653 Behavioral Science Application for Managerial Effectiveness
   - MGMT 655 Organization Theory
   - MGMT 657 Behavior Analysis Application

4. Six semester hours of CAS 170, Independent Research, or CAS 712 Professional Field Experience for a research project or practicum in organizational communication.

Exceptions to these requirements may be made on the basis of professional experience and the needs of the individual.

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.

Admission Requirements

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 Adviser, prepare and submit...
a two-page statement of educational objectives and meet for an interview with the Department Graduate Committee.

Program requirements
1. Nine hours selected from the following Education Core Courses:
   b. ED 802. 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
Advisers: John Herman, Dionysios Kountanis

The Master of Science program in Computer Science is primarily a professional program that emphasizes the study of computer software development. It is designed to prepare students for positions in computer organization and systems development in industrial corporations, in government service or in computer services companies. Graduates will also be well prepared to teach computer courses in two-year colleges or to undertake more advanced training in Computer Science.

Students with a strong undergraduate background in Computer Science and Mathematics may be able to complete the program in twelve months, but most students will probably require a longer period of time.

Admission requirements
Candidates for admission to this program must have satisfactorily completed an undergraduate program containing courses in both Mathematics and Computer Science. Candidates should have Mathematics courses including a calculus sequence and a course in abstract algebra or discrete structures. Students without this background will be asked to complete appropriate course work such as MATH 123, 230, and 310 as admission requirements. Candidates should have Computer Science course work including a thorough knowledge of a computer assembly language, computer organization, data structures, structured programming, and a course covering programming applications at the level of CS 506. Students without this background will be asked to complete appropriate course work, such as CS 224, 306, 506, and 510 as admission requirements. Applicants are urged to submit Graduate Record Examination aptitude scores.

Students entering the M.S. program who are not familiar with the DEC System-10 should attend the non-credit workshops on system Monitor Commands and editing languages offered early each semester by the WMU Academic Computer Center.

Program requirements
Each student must complete an approved program consisting of at least 31 hours of graduate work including the following:
1. CS 542, 544, 554, 625, 631, 680, and 691.
2. Two approved courses from CS 632, 643, or 655.
3. Additional approved electives from CS 527, 541, 542, 563, 632, 643, 655, 681, 682, 710, 712, MATH 560, 567, 640, PHIL 520 or MGMT 564.
4. Students who, with the approval of their adviser, elect the Thesis option will register for 6 credits of work in CS 700.

The performance of each student will be reviewed after the completion of approximately 10 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 of all students who do not elect the Thesis option.

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 through the election of CS 710, Research, or CS 712, Professional Field Experience, as part of requirement 3 above.

There are many areas of concentration available for financial support of graduate students. Graduate fellowships are available through the Graduate College. A number of Teaching Assistantships and Research Assistantships are provided through the Computer Science Department. Certain other academic departments, particularly the Department of Mathematics, provide Assistantships to Computer Science students. In addition, many students work out part-time employment with private businesses, educational institutions, or other areas of WMU. Individuals desiring further information on Fellowships or Assistantships 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 administration. The program is offered 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 goals 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.;
30 MASTER'S DEGREE PROGRAMS AND REQUIREMENTS

Walwood Union

The Department of Dance offers a
Janet E. Stillwell, Adviser
work), review of student's status in the
evaluated. This process includes
Dance
3.  A written and oral comprehensive
examination in dance.

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. Twelve hours of required theory
courses:
(a) Upper-level dance studies (2
courses)
(b) Elective dance courses (2
courses)
(c) General education courses (1
course)

2. Ten hours of ensemble or ensemble
cognate courses:
Either: (A) Up to ten hours of
technique from the following
repeatable ensemble courses:
(1) Jazz Dance Ensemble (2)
(2) Ballet Ensemble (2)
(3) Contemporary Dance
Ensemble (2)
(4) Or at least four hours of
ten ensemble courses and six hours of
approved cognate courses.
(5) At least four hours (two
semesters) of ensemble must be
taken in the candidate’s area of
specialization. If the student desires
to take additional ensemble work
in another area, he/she must be
accepted to this ensemble by a
performance audition.
(6) Six hours of credit from either:
(7) 690 Graduating Recital (6) or
700 Thesis (6)
(8) Upon completion of the first 6-10
semester hours of work, a faculty
review of the student’s work will
take place. This review will provide
the graduate advisor and the
student with information regarding
the probable success of the student
in the program.
(9) A second faculty review will take
place prior to registration for either
690 or 700 in order to determine
the candidate’s readiness for this
capstone experience. The
committee will recommend either
approval for registration or
specific additional skills the student
must achieve before approval is
given.
(10) Graduate students also are
expected to attend or participate in all
dance performances sponsored by
the Department or the University
who plan to pursue careers in public
administration in Africa, Asia, Latin
America, or other areas usually
described as “developing.” The
objective of the program is to provide
graduate students with professional
training in public administration with
special attention given to the problems
of countries attempting to develop
economically, politically, socially, and
otherwise. In this context, public
administration bears the exceptional
burden of translating public policy into
successful sequences of change.
Public administration becomes the
bridge between modernizing elites in
politics and traditional masses in their
struggle to survive. A major strength of
this program is the highly qualified
faculty specialists who have devoted
many years of research, residence,
and travel in the developing areas and
who apply their knowledge of these
areas to the problems of public
administration. By combining these
faculty with appropriate courses,
students will get a good grounding not
only in public administration, but in
techniques for analyzing and coping
with the peculiar problems of
developing areas.

Admission requirements
Applicants must satisfy the
requirements for admission to The
Graduate College in order to be
considered for admission to this
program. Actual admission to the
program requires, of graduates of U.S.
institutions, a 3.0 average (on a 4.0
scale) in the social sciences.
Graduates of foreign universities must
show an overall grade level of “very
good” and demonstrate English
proficiency. (All applicants must
convince the program advisor of
seriousness of purpose and of approp-
riate career aspirations.)

Program requirements
The Master of Development Ad-
ministration-degree requires forty-five
(45) semester hours of study. Full-time
students will ordinarily take sixteen (16)
to twenty (20) calendar months to
complete the program. The basic
requirements are as follows:
1. Prerequisites (non-credit) The
following courses or their
equivalents: PSCI 200, National
Government; PSCI 330, Introduction
to Public Administration, and ECON
201 or 202, Principles of
Economics.
2. Core requirements: The core
consists of thirty-six (36) hours of
required courses, or a total of
twelve (12) courses. These are
selected so as to provide: (a) course
work in administrative theory, personnel
management and budgeting; (b) comparative public
administration; (c) research
methods and statistics; (d) skills in
computer usage, supervision and
office management; and (e) a
research paper.
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 in 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. Regional Geomorphology of the United States, Marine Geology.

2. All students are expected to attend Departmental seminars and are required to give one presentation in residence. Students may enroll for credit in GEO 660 for seminar presentations.

3. Complete a general exploratory examination in earth science covering astronomy, oceanography, meteorology, and geology at the beginning of the first semester in residence.

4. Optional election of GEO 700 (Thesis) or GEO 710 (Independent Research).

5. Electives in earth science or related disciplines with consent of graduate adviser.

6. If thesis option is chosen, an oral defense of the thesis will substitute for the comprehensive exam.

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,

Distributive Education

Raymond A. Dannenberg, Adviser
Room 1001, Distributive Education Building

The Master of Arts degree program in Teaching of Distributive Education is designed with three groups of students in mind: those who have completed an undergraduate program in Distributive Teacher Education and currently hold a Vocational Distributive Education certificate as a teacher-coordinator; those who have completed a Business Education and/or Business Administration bachelor’s degree program and hold a general secondary provisional teaching certificate; and those who have completed a bachelor’s degree program with a major emphasis in business, marketing, or distribution. The minimum number of hours for completion of the M.A. program is thirty semester hours.

Western’s master’s degree program in Teaching of Distributive Education is the oldest of its type in Michigan. Graduates hold positions as distributive education teacher-coordinators in high schools, area vocational-technical centers, community colleges, four-year colleges and as vocational administrators in schools and state departments of education.

Admission requirements

In addition to the normal admission requirements of The Graduate College, the following criteria will be used to determine the acceptability of a candidate’s qualifications for admission to the master’s degree program in Teaching of Distributive Education.

1. Occupational Experience: The evaluation of occupational experiences of an applicant for vocational authorization or endorsement shall be based on the recency and relevancy of that work experience as follows:
   - The applicant shall have two years (4,000 clock hours) of work experience in the occupations for which he/she will be preparing students. This work experience shall be of such nature that he/she will be able to design instruction that is realistic for each of the distributive occupations normally included in a distributive education program.
   - The work experience shall have been completed no more than five years prior to the application for initial vocational endorsement or authorization.
   - Part-time work experience shall be credited to the applicant on the basis of number of hours applicant worked.
   - Applicants lacking sufficient work experience may make up the deficiency by completing an approved supervised work-experience program under the supervision of Western Michigan University. An early conference with the departmental graduate adviser is recommended.

2. Subject Matter Background: The following requirements must be met:
   - 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.
   - 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 1128, Rood Hall

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

3. Concentration: Nine (9) hours will be selected from a list of courses which focus on some topic of relevance to public administration in developing areas. The areas of concentration include Environment Management, Organization Theory, Personnel Management, Planning, Rural Development, Welfare Administration, Comparative Administration, and American Administration.
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.
2. A core of fifteen semester hours in Economics.
3. Satisfactory completion of GEOL 700 (Master’s Thesis) or GEOL 710 (Independent Research), for those electing GEOL 700, an oral defense is required.
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. Zeldes, Adviser
Room 5075, Friedemann 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: economic 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 substituted 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 advisor-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, Business, and Fine Arts.

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 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 I 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. 12 S.H.
   and Utilization
   ED 548 (3), 549 (3), 641 (3),
   LIB 542 (3)
   (Secondary Certification), or
   LIB 546 or 617 (3)
   (Elementary Certification)
Early Childhood Education

Advisers: Dorothy Bladt, 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 an approved program for the certificate to be completed at the time of graduation; or

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 Kittly, 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 an
   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:
   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
   ED 650, Characteristics of the
   College Student
   ED 680, The Community College
   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 en-
vironmental 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
1. Thirty hours of graduate credit
   including the required course of ED
   535, Introduction to Teaching the
   Disadvantaged; ED 601, Fund-
   mamentals 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
   goal of the student. These courses
   are selected to provide depth and
   breadth in subject matter fields as
   well as to improve understanding of
   the social, cultural, and education
   problems of the disadvantaged
   children.

Teaching In The
Elementary School
Advisers: Mary Cordier,
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
may 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.
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:
   b. ED 602. School Curriculum
   c. ED 603. Social and Philosophical Foundations
   d. ED 604. Psychological Foundations

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 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: Edward L. Galligan
   Prerequisite: Minor in English

   Teaching of Geography
   Advisers: Joseph Stoltman, George Vuich
   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: Christian Hirsch
   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: Robert H. Poel
Prerequisite: Minor in one of the Sciences

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: Shirley A. Van Hoeven
Prerequisite: Minor in speech with suitable cognates

Educational Leadership
Advisers: Carol F. Sheffer, Chairperson; Harold W. Boles, Robert O. Brinkerhoff, Mary Anne Bunda, James A. Davenport, Sidney Dykstra, Richard E. Munsterman, James R. Sanders, Uldis Smidchens, Daniel L. Stufflebeam, 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/organizational 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 this major's curriculum should consider the requirements of the advanced degree in making this selection.

Each student will be assigned an adviser who will be 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 designing an individualized and multidisciplinary program of studies to pursue such programs in departmental and other offerings in these focal areas:

- **8**-13 hrs. in Administration
- **8**-11 hrs. in Human Relations
- **6**-8 hrs. in Concept Formation
- At least 3 hrs. in Research
- At least 3 hrs. in Independent Study
- At least 30 hrs. minimum Total

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 an elementary, middle, junior high, or senior high school, a manager or director of a private school, a manager or director of a social service organization or a business or industrial unit.
   - 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 schools, service agencies, business, or industry.
   - Program Leadership—intended to prepare a person for a position as a Director of Training and/or Management Development in the armed forces, business, government, industry, a professional association, or a trade union, or a director coordinator of programs in social welfare agencies.

*Certain career goals within the program may alter the number of hours required in these areas. Among the areas of faculty expertise available to students are: community education, early childhood education, evaluation, higher education, media and technology, and training and development.

Engineering

Advisers: Dr. C. A. Hesseltine, Chairperson

Electrical Engineering Department
Room 3003, Kohrman Hall
Dr. J. B. Matthews, Chairperson

Mechanical Engineering Department
Room 2005, Kohrman Hall

This professional degree program, leading to the degree of Master of Engineering, is designed to prepare students with an engineering background to continue their professional growth and development in the field of engineering. This preparation emphasizes the expansion of professional knowledge, coupled with the development of those skills necessary for advancement in the profession, and is primarily intended for those individuals who intend to function in industry in responsible positions requiring more than the Baccalaureate of Science in Engineering degree.

The program of study is designed to provide the student with knowledge and skill in the areas of:

1. A selected area of engineering—options offered in energy engineering or manufacturing engineering

2. Resources management—including people, time, and money.

3. Written and oral communications.


Qualified full-time students entering in the fall semester can complete this program of 30 graduate credit hours in
two semesters, plus one spring session (September through June). Some students may have to remedy deficiencies in their undergraduate program which may require additional course work. Individual graduate programs will be arranged in advance with the appropriate graduate adviser. Courses are normally offered in the evening to allow participation by those engineers currently employed in government or industry. Enrollment on such a part-time basis will probably require a minimum of three years for completion.

Admission Requirements
Candidates for admission into the Master of Engineering must have satisfactorily completed a B.S. degree in engineering, in addition to meeting the general requirements established by The Graduate College. The Graduate College’s English Qualifying Examination is required for all graduate students in the Master of Engineering program before admission will be completed.

Students admitted in a Permission to Take Classes (PTC) status are limited to the number of courses which may be applied toward the Master of Engineering Degree. It is imperative that such students complete their admission requirements and program plan with their graduate adviser during their first semester of enrollment.

Program Requirements
The Master of Engineering program requires, in addition to any necessary prerequisites, a minimum of thirty hours coursework, including nine hours of core courses, eighteen hours of option courses, and satisfactory completion of a three hour project course developed around a significant topic of interest to the student and approved by his or her adviser. A formal written report of the project will form the basis of an oral presentation.

Core courses include:

IEGM 600 Concepts of Supervision
IEGM 601 Seminar (1 credit each of three successive terms)
IEGM 606 Capital Budgeting
697 Problems in Engineering (3 credit minimum)

Options include:

Energy Engineering
EE 530 Power Systems
EE 630 Power Systems Analysis II
OR
ME 560 Engineering Analysis
ME 670 Modern Control Theory
OR
EE 501 Electrical Systems
ME 531 Energy Management
ME 632 Energy Resources & Conversion
CS 506 Scientific Programming

Manufacturing Engineering
ME 553 Advanced Product Design
EE 601 Applications of Microprocessors
EE 670 Modern Control Theory
IEGM 505 Advanced Methods Engineering OR
IEGM 542 Human Factors Engineering
IEGM 604 Manufacturing Sysems Design
MGMT 564 Simulation Models

Subject Matter Prerequisites include:
Candidates must show evidence of successful completion of the following:
Power Systems (EE 501)
Engineering Analysis (ME 560)
Work Analysis (IEGM 305)
Plant Layout and Material Handling (IEGM 400)
Control Systems (ME 360)
Product Engineering (ME 453)

Opportunities for financial support of graduate students are offered through the Engineering School in the form of Graduate Assistantships and Fellowships, and through the Institute of Technological Studies in the form of part-time work assignments on various research projects. Individuals desiring further information about such opportunities, or about the graduate program in general, should contact the appropriate adviser.

English
Edward L. Galligan, 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 640, The Nature of Poetry; ENGL 660, Research and Writing; and ENGL 688, 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 minimum of an 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 Education.

Geography
Charles F. Heller, Adviser
Room 332, Wood Hall

Master Of Arts in Geography
The Master of Arts degree program in Geography provides a foundation in the subject and at the same time permits a concentration in one of five areas listed below. The student may prepare for a geographic career in government, business, and industry, or for pursuit of a higher degree. In working toward a career, each student develops an individual mix of analytic, cartographic, communication, and planning skills. A minimum number of 30 graduate hours is required.

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 pass three qualifying examinations equivalent to comprehensive examinations in three introductory courses: Economic Geography, Human Geography, Physical Geography.

Program requirements

1. Completion of a minimum of three courses in one of the five following areas of concentration:
   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 concentrations except Community Development and Planning, where 36 hours are required; at least 20 hours to be completed in the Geography Department.

3. Completion of Geography 661 (Geographic Research) and Geography 568 (Quantitative Methodology)
   Either Geography 560 (Principles of Cartography) or Geography 582 (Remote Sensing of the Environment)
   Geography 556 (Urban Planning and Zoning) if the Community Development and Planning specialization is selected.

4. Completion of 6-8 hours of 700-level course work in Geography (a research paper, thesis, or internship). Students opting for the Community Development and Planning specialization must complete a 6-hour internship (Geography 712).

Admission requirements

There are no prerequisites for entry into the program. The prospective candidate should 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 of 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

Ron B. Chase, Adviser
Room 0039, 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 (excluding deficiencies) 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. Areas of specialization in the Geology Department include Sedimentary Geology-Paleontology, Structural Geology, Petrology-Mineralogy, Environmental, and Surficial Geology.

2. All students are expected to attend Departmental seminars and are required to give one presentation 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. Take an exploratory exam at the beginning of the first semester in residence.

6. Successful completion of an approved rock-oriented field course if not completed in the student’s undergraduate program.

7. Pass an oral thesis defense examination. In the case of failure, one retake is possible.

History

H. Nicholas Hamner, Adviser
Room 4045, Friedmann Hall

The Master of Arts degree program in History is designed to amplify and augment the training of students who completed concentrations in History at the undergraduate level. The program qualifies students for further graduate work in History. It also helps prepare students for such fields as teaching, government, and administration of historic agencies.

Admission requirements

An undergraduate major in History, or extensive preparation in the social sciences including at least fifteen hours of History. In the absence of such preparation, the departmental graduate committee may require appropriate remedial course work.

Program requirements

1. Earn thirty hours of graduate credit, of which a minimum of twenty hours must be in History. Course work outside the department must be approved in advance by the graduate adviser.

2. Choose two fields of History in consultation with the graduate adviser, one of which should be designated as the field of concentration. Complete satisfactorily written and oral comprehensive examinations in both fields. The department offers course work in most of the usual fields of European and United States History, as well as applied course work in a number of historical professions.

3. Choose one of the three options listed below:
   a. Complete two seminars, one of which must be in the designated area of concentration.

Master Of Arts In Teaching Of Geography

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

The 30-hour Master of Arts degree program in the Teaching of Geography is designed to improve the classroom teacher’s competencies. There are two major objectives: to provide elementary and secondary teachers with a graduate degree option which combines the content of geography and related disciplines with professional development, and to provide elementary and secondary teachers with the skills and knowledge necessary for providing educationally sound learning experiences for their students.
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 3018, Kohrman Hall

Graduate programs in Home Economics are designed to provide either a general program of studies in the whole area of Home Economics or an in-depth study for the person desiring to strengthen specialized interest areas. All master’s programs include a minimum of 30 semester hours, fifteen of which must be of 600-level or higher.

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.

This program is planned for graduates working toward a master’s degree in any of the dimensions of Home Economics.

Program requirements
1. Complete a total of twenty hours in Home Economics in graduate level courses in two or more areas, planned in consultation with departmental adviser, including at least two hours of seminar credit.
2. Complete a minimum of ten hours at the graduate level in allied areas, planned in consultation with departmental graduate adviser.

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 interests.
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 fundamentals 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.

Industrial Education
Charles G. Risher, Adviser
Room 2049, Kohrman Hall

The Departments of Industrial Education and Teacher Education offer a 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 for certain 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 (I ED 545, 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.
other than librarianship and to relate that knowledge of librarianship.

The programs of the School of Librarianship are accredited by the American Library Association and the School is a member of the Association of American Library Schools.

Master Of Science In Librarianship

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. All instruction in the school is designed with a multimedia approach.

Additional information and the School’s application form are contained in Programs in Librarianship, a publication 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 comprehensive examinations in these courses. This student may elect courses in a field of special interest in librarianship to complete a program which will total thirty-six hours.

A student with approved undergraduate work in librarianship may be permitted to complete a thirty-hour program and to elect courses from other departments for a total of six to eight semester hours. Certain areas of specialization, however, such as the school media program, may require more than the minimum thirty hours, regardless of the student’s background.

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

Master Of Library Administration

The Master of Library Administration (MLA) is a second master’s degree. Planned for the experienced student with a master’s degree in librarianship from an ALA accredited program who desires additional management skills.

This interdisciplinary degree is administered by the School of Librarianship, with involvement of the Department of Management in advising, admission, and teaching.

Cognate courses from other departments of the University may be included.

Admission requirements

1. Master’s degree from an ALA accredited library school program.

2. Minimum of one graduate course in management or administration.*

3. Three years of library experience.*

4. Professional goals, educational objectives and needs appropriate to the program.

*May be waived for certain applicants.

Program requirements

1. 18 hours chosen from three core areas: Managing the New Technology of Library and Information Science, Management, and Research.

2. 6-10 hour choices from two of five elective groupings: Personnel and Labor Relations, Finance and Law, Structural Communications, Economic and Sociological Concerns, Advanced Administrative Topics.

3. Librarianship 650, Advanced Seminar in Librarianship.

Manufacturing Administration

Roy W. Groulx, Chairperson of Advisers
Room 2015, Kohrman Hall

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

1. To augment the professional and technical skills of students in specific areas.

2. To develop the capabilities to deal appropriately with resources 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 prerequisites 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, foundation courses will be required.

Program requirements

1. Complete a minimum of thirty hours of graduate work, including IEGM 697 Engineering Problems, and IEGM 640 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 pertaining 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
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 Applied Mathematics, the Master of Science in Biostatistics, the Master of Science in Statistics, 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

Gerald Sievers, 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 advanced 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 concentration in Statistics are listed under the Master's degree program in Statistics. For students specializing in applications of Mathematics, the preceding requirements can be modified somewhat. Students interested in a M.S. program in Biostatistics, 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 opportunities, or about the graduate program as a whole, should contact the Department Chairperson, or one of the Program Advisers.

Master Of Arts In Teaching Of Mathematics

Christian Hirsch, 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 offered for graduate credit.
2. Nine semester hours by selecting from the four three-hour courses:
   a. EN 600, Fundamentals of Measurement and Evaluation in Education;
   b. EN 601, Fundamentals of Educational Research;
   c. EN 602, School Curriculum;
   d. EN 603, Social and Philosophical Foundations

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 substance 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 opportunities, 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
Music

Advisers: Robert G. Humiston, Room 104, 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 that 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 examinations include performance, music history, music theory, music therapy, functional piano, and conducting (including aural skills and instrument 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 seven 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.)

2. **Cognate music studies**: composition, music education, history, theory (9-12 hrs.)

3. **Electives**

**CONDUCTING** (Minimum of 30 hrs.):

1. **Required courses**:
   - MUS 610, Introduction to Research in Music
   - Conducting 530, 531, 600
   - MUS 664, Form in Music
   - MUS 690, Graduate Recital (includes oral exam)

2. **Cognate music studies**: applied music, composition, history/literature, music education (9-12 hrs.)

3. **Electives**

**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

2. **Electives**

**MUSIC THEORY** (Minimum of 30 hrs.):

1. **Required courses**:
   - MUS 610, Introduction to Research in Music
   - MUS 650, Seminar in Music Education
   - MUS 700, Master's Thesis

2. **Cognate music studies**: applied music, composition, history, theory (9-12 hrs.)

3. **Electives**

4. **Proficiency in keyboard 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 610, Introduction to Research in Music
   - MUS 650, Seminar in Music Education
   - MUS 700, Master's Thesis

2. **Cognate music studies**: applied music, composition, history, theory

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 681, Research in Music Therapy
   - 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.)

   (*The student must have completed the six-month internship required for R.M.T. certification prior to enrolling in MUS 700, Master’s Thesis, and MUS 712, Professional Field Experience.)

Students who have a Bachelor of Music degree but do not have a major in music therapy may complete R.M.T. certification requirements while the graduate program is in progress, but the equivalency requirements may not satisfy graduate program requirements. Equivalency requirements may be obtained from the Director of Music Therapy, Western Michigan University.

Master Of Arts In Teaching Of Music
The Departments of Music and Education and Professional Development offer a Master of Arts degree program in the Teaching of Music. The basic purpose of the degree program is to offer course work in music and teacher education which will enhance the student’s teaching abilities in general, and more especially in the area of music. This degree program is accredited by the National Association of Schools of Music. A minimum of thirty semester hours of credit are required to complete this degree.

Admission requirements
A Bachelor of Arts or Science degree, or equivalent, with a major in music and a teaching certificate, is required for admission. Students are admitted on the basis of transcripts, which must include at least forty semester hours of acceptable work in music. Exceptions to admission requirements may be granted if competency can be demonstrated through Preliminary Examinations. 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 will be administered in the areas of music history and music theory.

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 student and adviser provide 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 requirements include:

1. Nine hours from the Education core courses:
   - ED 602, School Curriculum
   - ED 603, Sociological and Philosophical Foundations
   - ED 604, Psychological Foundations of Education
2. Eleven hours of Music Education courses:
   - MUS 610, Introduction to Research in Music
   - MUS 642, History and Philosophy of Music Education
   - MUS 650, Seminar in Music Education
   - MUS 542, Studies in Music Education
   - MUS 691, Special Project in Music Education, or

   MUS 681, Research in Musical Behavior (includes oral exam)
   Elective in Music Education

3. Four hours in Applied Music, Theory, or Music History/Literature
4. Six hours of electives (selected in consultation with the Graduate Adviser)

Occupational Therapy
Richard Cooper, 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
      2. Administration of Occupational Therapy
      3. Seminar in Occupational Therapy
      4. Supervision and Teaching Experience in Occupational Therapy
Operations Research
Franklin K. Wolf, Program Director
Room 2007, Kohrman Hall

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

Certification for graduation shall include the preparation of an oral presentation of his 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 fields of paper coating and fiber recycling, 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.

Admission requirements
Applicants with widely diversified science and engineering backgrounds may qualify for admission based upon demonstrated competence in an accredited college or university degree program. In all cases the applicant's academic credentials and professional experience will be reviewed by the graduate adviser to determine whether any background courses are necessary. These may be taken concurrently with the graduate courses.

Applicants are encouraged to submit results of the graduate record examination as a supplemental credential for admission.

The following gives the general guidelines of prerequisites for four classes of applicants:

1. Graduates from four year pulp and paper science programs will generally have the necessary prerequisites in Pulp and Paper Technology but may need one or two background courses in Process Engineering, Mathematics, or Chemistry.

2. Chemical Engineering graduates will generally satisfy the Science, Engineering, and Mathematics requirements but will be required to take three pulp and paper systems graduate level courses in addition to the normal graduate program.

3. Chemistry degree graduates will generally be required to complete two background undergraduate courses in process engineering and three pulp and paper systems graduate courses in addition to the normal graduate program.

4. Graduates of other science, engineering, or technology programs may be required to take background undergraduate courses in Process Engineering, Mathematics, Chemistry, or Physics, depending on the particular credentials of the applicant. Also, three graduate courses in pulp and paper systems will be required in addition to the normal graduate program.

In some instances the applicant may be recommended to register for one or more semesters of undergraduate course work in order to satisfy particular academic areas prior to applying for graduate school admission. Many students have found it desirable to obtain a second bachelor's degree in Paper Science or Engineering. This approach is useful to those applicants having non-conventional academic backgrounds and who desire to establish their credentials for graduate study.

Program requirements
1. A minimum of fifteen hours of paper science selected from these twenty-three hours of offerings: Polymer Chemistry 530, Advanced Topics in Pulp and Paper Engineering 560, Surface and Colloid Chemistry 600, Paper Printing, and Inks 620, Coating Rheology and Film Formation 640, Mechanics and Optics of Paper and Fibers 660, High Polymer Topics 680 or Paper Industry Control Systems 696.

Graduates without previous pulp and paper background must take, in addition, Pulp and Paper Operations I 590 and Pulp and Paper Operations 691. PAPR 696 must also be taken as part of the required 15 credits.

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

3. A minimum of nine additional hours of graduate courses from the chemistry, physics, or mathematics departments, selected with the consent of the graduate adviser.
Physical Education
Advisers: George G. Dates, Room B-321, Ellsworth Hall
Dr. Ruth M. Davis, Room B-320, Ellsworth Hall
Jack Jones, Room B-317, Ellsworth Hall
Dr. Roger Zabik, Room 204, Gary Center

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

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 or equivalent 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 course work 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, Physical Education, 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. Oppiliger, 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 objectives of the program are 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, and nuclear physics.
3. Computer and instrumentation physics, including the use of PDP-10 and PDP-15 computers and assorted microprocessor-based microcomputers.

Or any combination of these, or some interdisciplinary areas.

Admission requirements
Students entering this program are expected to have acquired a Bachelor's degree in Physics or at least an equivalent amount of experience and training (including mathematics at the appropriate level). The departmental graduate adviser will provide assistance to students seeking admission to this program and will recommend ways of eliminating any deficiencies in course work.

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 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 must be either a 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
Claude Phillips, 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 quasipublic 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.

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 up to two courses with a maximum of eight 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)
   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 two courses with a maximum of eight 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 listed in Point 3 above.
4. Pass written and oral field examinations covering the student’s political science program.

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 laboratory courses designed to provide training in Psychology at the undergraduate level. Equivalent courses at Western Michigan University are PSY 252/258 and PSY 362/368.

Applicants to the master’s degree program in applied behavior analysis are expected to show evidence of some previous 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 or Miller Analogies test score)
3. Three letters of recommendation
4. An autobiography describing academic interests and professional goals.
5. 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.

Experimental 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 of Psychology. This 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 selected courses in behavior theory, technology, and applications. This 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 consultation 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 be arranged with the adviser.
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 a professional orientation may write a thesis or complete a three to six hour individual research project. The selection of courses outside the core, including the thesis option, will be established after consultation with 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, 608, 634, 683, 686, 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 master 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.

**Specialist in School Psychology**

**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 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 degree candidate has acquired skills deemed essential to the professional administrator. Full-time graduate students should find it possible to complete MPA requirements in four semesters 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 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.

1. A professional core consisting of five courses: PSCI 631 (3), The Foundations of Public Administration; PSCI 633 (3), The Political Environment of Public Administration, PSCI 634 (3), Seminar: Professional Issues in Public Administration; PSCI 635 (3), Pro-Seminar in Agency Administration; and a course in organization theory.

2. A technical core providing skills in fund accounting, budgeting, public finance, statistics, administrative law, public personnel administration, and electronic data processing.

3. 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.

4. Professional practice, consisting of a three-four month internship experience for pre-career students and some agency of city, county, regional, state, or federal government.

**Religion**

Guntram G. Bischoff, Adviser
Room 3063, Friedmann Hall

The Master of Arts degree program in the Teaching of the Academic Study of Religion is offered by the Department of Religion. The curriculum is designed to provide professional training for graduate students and mid-career public school teachers with a special interest in the teaching of the classical 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:
   - **OPTION I** — For experienced teachers, holding the B.A. or equivalent
     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)
   - **OPTION II** — Cognate option for experienced teachers
     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)
3. Six hours from either professional teachers, holding the B.A. or equivalent
   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)
   c. REL 622, Seminar-Practicum on the Teaching of the Academic Study of Religions in the Public Schools (3 hours)
   d. REL 710, Independent Research (Curriculum Project of 6 hours)

**Social Sciences**

William S. Fox, Adviser
Room 1402, Sangren Hall

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.

**Science Education**

Robert Poel, Adviser
Room 313, Moore Hall

The science departments (Biology, Biomedical Sciences, Chemistry, Geology, Physics, and selected courses from Geography 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 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
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, 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
Director of Admissions
Room 402, Moore Hall

A two-year M.S.W. degree program in 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 examined as a problem-solving response to emerging and extant social conditions which have negative consequences for individuals, the family, special groups, the local community, and the society at large.

To meet students' special interests, the School of Social Work offers courses in the areas of Corrections, Health Care, Rehabilitation, Community Organization, Family and Child Welfare Practice, Race and Culture, and School Social Work. In addition, the School offers opportunity for participation in an interdisciplinary Specialty Program in Alcohol and Drug Abuse (SPADA) and a multidisciplinary Graduate Specialization in Gerontology. 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:
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.

Admission requirements
Applicants for graduate study in social work must complete two applications—one for the Graduate College and one for admission to the School of Social Work. Both applications can be obtained from the School of Social Work. Admission is granted for the Fall Semester only. Deadline for filing applications is April 1st of each year. In addition to the Graduate College's requirements for admission to a master's degree program, the following criteria will be considered:
1. Evidence of adequate academic preparation for graduate study in social work. This includes consideration of both undergraduate performance and area of study.
2. Evidence of personal qualifications considered desirable for successful social work practice. These include motivation for a human service profession, personal maturity, and leadership ability.

Program requirements
1. The successful completion of sixty hours of credit, graded on a credit/no credit basis, is required for the master's degree in Social Work. This will include the following course credits:
   - Semester Courses in the School of Social Work (15-36 hours)
   - Semester Courses in other university departments (6-9 hours)
   - Semester Field Education (12 hours)
   - Field Studies in Research and Practice (6 hours)
2. Proficiency exams are available in SWRK 610, 630, 631, and 640. Students have the option of receiving full credit or a waiver with no credit for those courses in which proficiency exams are passed.
3. One academic year of residence is required for all students who are candidates for the two-year M.S.W. degree. An academic year will be considered the equivalent of two semesters of full-time work. Nine semester hours, including field education, will be considered full-time work.

In addition to the regular full-time program, the School offers a planned part-time program on campus called the "Extended Degree Program" and a part-time, off-campus degree program located in Grand Rapids in cooperation with the Division of Continuing Education. Persons interested in part-time programming should contact the Director of Admissions.

Financial aid is available to a limited number of qualified full-time students. Information regarding the various types of available assistance may be obtained by writing to Director of Admissions, School of Social Work, Room 402 Moore Hall.

Sociology
Director, Graduate Studies:
Robert F. Wait, 2409 Sangren Hall
Advisers: Gerald E. Markle, 2512D, Sangren Hall
Ronald C. Kramer, 2409 Sangren Hall

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
Advisers: Ahmad Baker, Joseph Eisenbach, Alonzo Hannafor, Barbara Harris, Dona Iacbone, Abraham Nicolau, Elizabeth Patterson, Donald Sellin, 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 quality 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 and the leadership personnel degree program.
3. A point-hour ratio of at least 2.6 during the last sixty semester hours of undergraduate study and 3.0 in the special education major.

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 or homebound persons who qualify for the Master of Arts degree by completing a major in a categorical area. Prerequisite coursework may 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:
   - ED 312 Teaching of Reading
   - SPED 530 Education of Exceptional Persons
   - SPED 533 Diagnostic and Prescriptive Techniques in Special Education
   - SPED 540 Curricular and Instructional Provisions for Exceptional Children and Youth
   - SPED 588 Behavior Disorders in School-Aged Learners
3. Special Education personnel who wish to obtain professional preparation which will enable them to serve in leadership roles are expected to have earned an undergraduate degree in one of the categorical areas of exceptional children and have special class teaching experience. Major emphasis in this program will be placed on research, supervision, and administration in special education.

Program requirements

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

1. A minimum of thirty hours of graduate level work, 15-18 of which must be in Special Education.
2. Twelve hours of credit in courses offered by departments outside the Department of Special Education.
3. A comprehensive written examination administered after the student has completed a minimum of twenty semester hours. Responsibility for scheduling this examination is to be assumed by the graduate student after consulting with the program adviser. Upon the receipt of the written request from the graduate student to the program adviser or department head, arrangements for the comprehensive examination will be made.

Speech Pathology and Audiology

Advisers: Harold L. Bate, Room 203, Speech and Hearing Center Michael J. Clark, Room 205, Speech and Hearing Center Robert L. Erickson, Room 235, Speech and Hearing Center Gary D. Lawson, Room 240, 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-Language Pathology or Audiology during graduate study and, in any case, 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 Language, 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.
   a. 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. Coursework in linguistics, biology, mathematics, and physics 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.

3. Accumulation of a point-hour ratio of at least 3.00 in all undergraduate speech pathology and audiology coursework.

4. Submission of applicant’s scores on the Aptitude Section of the Graduate Record Examination.

5. Evidence of personal and professional qualifications considered necessary for successful professional practice as reflected in:
   a. 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.
   b. 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. Students who desire Michigan Teaching Certification should contact the Certification Office, College of Education, Sangren Hall.

Specific program requirements are as follows:

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. 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.)

4. The student must manifest emotional and behavioral characteristics which, in the judgment of the departmental staff, will not jeopardize his/her professional competence. A Master’s Thesis (6 hrs.) or one or more independent research projects 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

Janice DuBien, Chairperson of Advisors
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.

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-one 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 course in computer programming. Note: Any student lacking the probability course may take MATH 560 in the summer session preceding his/her first 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, 664, and 712
2. Three of the following: MATH 563, 566, 661, 663, 665, 666, 667, 669
3. Two hours of Seminar: MATH 696
4. A final examination over the entire 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 Graduate 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 Graduate 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, CP 631, SOC 618, SWRK 663 - Seminar in Substance Abuse (3 hrs.)

* These courses are cross-listed in the departments and school indicated.
SPADA participants must elect one of the following courses outside their department or discipline:
SOC 687 - Evaluation Research (3 hrs.)
PSY 663 - Behavior Change Marital & Family Therapy (3 hrs.)
SWRK 636 & Family and/or Small Group Theory (3 hrs.)
SWRK 645 - Social Welfare Policy Planning and Administration (2 hrs.)
ED 555 - Alcohol Education (2 hrs.)
HHS 530 - Clinical Theory in Health and Human Services (3 hrs.).
Electron Microscopy
Leonard Beuving, Adviser
Room 232, Wood Hall

The Graduate Specialty Program certificate will be awarded to those candidates who have completed a minimum of 16 credit hours of prescribed course and laboratory work beyond a Master's of Science degree. The candidate must demonstrate to the satisfaction of a committee composed of three members (2 of which must be Biomedical Sciences Faculty), competence in preparation of specimens, operation and maintenance (reasonable and required) of equipment, and photographic processing and printing. The evaluation of competence will be by an oral or written examination and practical demonstration of skills. The purpose of the program is to allow the interested student to acquire skills beyond the Master's degree but short of the requirements for a Ph.D. degree. The program will be balanced between theoretical, practical preparations, interpretation and scope operation and maintenance. It will equip the candidate to be a productive member of an operating electron microscopy laboratory.

Requirements for entry
1. Completed Master's degree in a biologically related area.
2. A degree of competence in electron microscopy, i.e. the Master's Thesis or project area required use of an electron microscope laboratory.
3. Chemistry background through two courses in biochemistry.

General Course requirements
The candidate must complete 632, 710, 712 and a course in histology

List of required courses:

- **BMED 632** Advanced Techniques in Electron Microscopy
  - 4 cr. time to be arranged

- **BMED 710** Independent Research-Variad Topics in Applied Electron Microscopy
  - 3 cr. time to be arranged

- **BMED 712** Professional Field Experience-Working experience in a professional electron microscope laboratory
  - 6 cr. Fall or Winter

- **BMED 537** Histology (or)
  - 3 cr. Winter

- **BMED 554** Histological Techniques (or)
  - 3 cr. Winter

- **BMED 574** Cellular Differentiation
  - 3 cr. Winter

**To be arranged as projects between W.M.U. and a commercial Electron Microscope Laboratory.
**To be arranged between W.M.U. and the Argonne National Laboratories Electron Microscope Laboratories. The student will work for one semester at Argonne National Laboratory full time on projects mutually directed by Argonne and Western Michigan University faculty. The progress of the student will be monitored by frequent site visits by the W.M.U. participant. (Details of the appointment must be arranged on an individual basis between Argonne and W.M.U. personnel at least 5 months prior to actual work. Appointments can be made for only 1 candidate for each of the Fall or Winter terms.)

Gerontology
Ellen Page Robin, Adviser
B108 Henry Hall

Western Michigan University offers a multidisciplinary Graduate Specialty Program in Gerontology. This program, designed for graduate students in master's or doctoral programs who wish to add Gerontology to their degree programs, consists of 20 hours of course work, field experience and/or thesis/dissertation credit. Ordinarily the specialization will require some work beyond that required for most master's or doctoral degrees. A certificate of completion of the Graduate Specialty Program 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 Specialty Program through the Gerontology Program Office and to The Graduate College.

Program requirements
In addition to completing the requirements of the degree programs pursued by the student, persons seeking the Graduate Specialty Program in Gerontology must complete a course of study totalling 20 semester hours. Some required courses for the 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 682. 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.
The program for the Specialist in Education degree normally includes fourteen hours of core courses, twenty hours of cognate courses, fourteen hours in a major field of study, six hours in a Specialist Project, and six hours or more of electives.

The program for the Specialist in Arts degree, except for scholarships, normally includes forty hours of courses in a major field or fields, ten hours of cognate courses, and the following professional courses: ED 650 The Characteristics of the College Student, ED 651 The Community College, and ED 699 Seminar in College Teaching. Students are also expected to complete a research course and to present a Specialist Project.

General Requirements
For A Specialist Degree

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.

Candidacy

a. A Graduate Student Permanent Program which constitutes 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.

g. Minimum Credit Hours: Completion of a minimum of sixty hours of accepted graduate credit in a program of study approved by an advisor.

d. Residence Requirement: 1) one semester (Fall, Winter, or Spring-Summer) of full-time enrollment at Western Michigan University, or 2) enrollment in two sessions in consecutive years and the intervening semesters.
e. Point-hour Ratio: A point-hour ratio of at least 3.25 is required for all work taken for the degree.

f. Hours After Candidacy: The election and completion of at least six hours is required after being approved for candidacy.

h. 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 degree at Western Michigan University may transfer up to twelve credits.

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.

i. Time Limit: A student who intends to register for the Specialist Project (6 hrs) is required to meet with the Administrative Assistant for Graduate Programs in The Graduate College before registering for the class in order that the student is informed about the regulations pertaining to the preparation of the manuscript.
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: Carol F. Sheffer, Chairperson; Harold W. Boles, Robert O. Brinkerhoff, Mary Anne Bunda, James A. Davenport, Richard E. Munsterman, James R. Sanders, Udiss Smidchens, 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/organizational 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/her 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 to pursue, constituted from departmental and other offerings in these focal areas:

- 11 hrs. in Administration
- 12 hrs. in Human Relations
- 12 hrs. in Concept Formation
- 3 hrs. in Research
- 6 hrs. in Independent study
- 16 hrs. of electives
- 60 hrs. minimum Total

*Certain career goals within the program may alter the number of hours required in these areas. Among the areas of faculty expertise available to students are: community education, early childhood education, evaluation, higher education, media and technology, and training and development.

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 of an elementary, middle, junior high, or senior high school, or as a central administrator in an institution of higher education or other post-high school educational agency and/or chief executive officer, a manager or director of a private school, or a manager or director of a social service organization or a business or industrial unit.
- 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 schools, service agencies, business or industry.
- Program Leadership — intended to prepare a person for a position as a Director of Training and/or Management Development in the armed forces, business, government, industry, a professional association, or a trade union, or a director of programs in social service agencies.

School Psychology

Galen J. Alessi, Program Coordinator
Julie Voss, Program Secretary
Room 258, Wood Hall

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.

The program has adopted an apprenticeship training model in which the applicant receives a personal appointment to one faculty adviser and two faculty sponsors. These faculty
then form the training committee for that person. Apprentices are encouraged to participate in the daily conduct of the Department's various training and research activities.

At the Master's level focus is on learning basic psycho-educational, behavior analysis and research skills, and the methods for applying these directly with clients within school settings. At the specialist level, apprentices develop the consultation and system analyses skills needed to implement the basic skills through other professionals and parents.

Study emphasizes the learning characteristics of mainstream and exceptional children as well as careful analyses of the various 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.

Completion of the specialist degree is required for recommendation for temporary approval. After one year of successful practice as a school psychologist, the graduate would be eligible to be recommended for full approval as a Michigan School Psychologist. Applicants must apply directly to both the Graduate College and the Department of Psychology. Those applying for Fall Admission should have materials in by October 15; while those applying for Winter admission (January) should have materials in by October 15.

**Admission requirements**

1. Completion of a major or broad minor in Psychology (or the equivalent).
2. Graduate Record Examination: Verbal and Quantitative Aptitude Test Scores.
3. Miller’s Analogies Test Scores.
4. Three letters of recommendation.
5. Vita and/or Autobiography.

Experiences with children and educational staff in school settings, course work in education, or teaching certificate are considered but not required for admission.

**Program requirements**

Upon successful completion of a program of 65 graduate semester credit hours, both a Master's Degree in Psychology and a Specialist Degree in School Psychology are awarded.

This is a competency based program approved by the Michigan State Board of Education. Degree requirements may be satisfied by written validation of a specified set of skill competencies or by completion of designated courses, or both. Responsibility to ensure proper experiences for competency validation or course work completion is placed on the apprentice and the faculty training committee. The training sequence will include:

1. Up to nine credit hours of prerequisite course work may be required of an entering student who does not have sufficient undergraduate training in behavior analysis or who fails to pass an exam in basic applied behavior analysis concepts. The need for such prerequisites and the specific courses will be decided by the major adviser, and these hours will not be included in the 65 credit hours required in the program.
2. Competency validation and/or course work in Psychology 517, 519, 608, 683, 634, and 686, as well as Psychology 668, Behavioral Assessment and Counseling. PSY 570 and 655 are recommended but not required.
3. Practicum experiences in at least two settings.
4. Six hours of course work outside of Psychology.
5. Completion of a 600 clock hour (12 credit hour) internship experience, half of which must be in a school setting under supervision of a fully approved school psychologist or consultant and a WMU faculty member.
6. Specialization in one or more topical areas, which may include: (a) educational assessment and planning, (b) educational technology, (c) behavior analysis and modification, (d) curriculum design, programming and coordination, (e) teacher consultation techniques, (f) parent and child counseling, (g) work with deaf, blind, speech, or orthopedically impaired, (h) American sign language and braille, (i) work with general and/or specific social and academic behavior adjustment problems, (j) mainstreaming procedures and models, (k) research methods, (l) administration and program management, (m) interdisciplinary teaming approaches, (n) criterion referenced behavioral assessment techniques, (o) professional ethics and legal issues, and (p) educational system analysis, synthesis, and evaluation.
7. Completion of a six-credit-hour Specialist Project.

In addition to preparation for full approval as a Michigan School Psychologist, the Specialist Degree Program is considered also to be basic preparation for doctoral training in School Psychology at other universities.

**Special Education**

Advisers: Joseph J. Eisenbach, Alonzo Hannaford, Abraham W. Nicolaou, Elizabeth Patterson, Morvin A. Wirtz
Room 3506, Sangren 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.
Business Education
Contact Department Office for Advising
Room 211, West Hall

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 Hamner, Adviser
4045 Friedmann Hall

The Specialist in Arts degree program in History is designed to prepare students for such fields as teaching, government, and administration of historic agencies. In some cases the program may be useful in preparing for further graduate study.

Each student is expected to select three fields in History and one field in a related department or area approved by the graduate adviser. The Department offers course work in most of the usual fields of European and United States history as well as applied course work in a number of historical professions.

Although no specific number of hours is required in each field or area, the student is expected to complete at least two seminars and to present an acceptable master's thesis or essay in the area of concentration. After completion of thirty hours of graduate course work there are written and oral examinations in two fields, and similar examinations in the two remaining fields in the last term of course work. Students must complete HIST 690, Historical Method; HIST 692, Studies in Historical Literature.

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 the systems level. There will be additional work in such fields as management and systems analysis, mass media and communication, computers and data processing, political science and sociology.

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. An autobiographical statement, giving evidence of appropriate background, objectives, and communication skills.
4. Recommendation from three persons, preferably employers and/or college teachers.
5. Personal interview.

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 individual research and professional internship.
3. Specialist paper or project acceptable to departmental adviser.
4. An oral examination based on the paper or project.
Mathematics

Arthur Stoddart
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 or 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 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

Robert H. Piel
Room 313, Moore Hall

The Specialist in Arts degree program in Science Education is designed to further prepare secondary and community college teachers of science for leadership roles in science education. 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 two or more of the sciences, other selected areas dealing with environmental issues, and 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 secondary and community college teachers in 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 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
   - A research course in the major science area.
   - ED 650, Characteristics of the College Student
   - ED 680, 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.
Western Michigan University offers doctoral programs in nine 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. The Doctor of Public Administration is also offered. 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.

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**

**Admission** — (See Calendar of 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 at least an overall 3.0 point-hour ratio in undergraduate work and at least 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 doctoral 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.

**Applicancy**

a. A student admitted with less than twenty hours of graduate study must request status as an applicant after completing two full semesters of graduate work at Western Michigan University 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 at Western Michigan University 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 is permitted to continue study toward a doctoral degree.

**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.

**Graduation** — (See Calendar of Events for Application deadline)

a. Completion of a minimum of ninety hours of courses, seminars, research, and other requirements...
Chemistry

Don C. Iffland, Adviser
Room 5110, 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. In the preparation of a dissertation, the student will prepare a plan of study in consultation with his or her doctoral advisory committee. This plan will 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 graduate 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 individuals who intend to specialize in:

1. Pupil Personnel Services in Schools
2. Student Personnel Services in Higher Education
3. Counselor Education and Supervision
4. Community Agency Counseling and Administration
5. Counseling Psychology.

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

The Doctor of Education (Ed.D.) in Counseling and Personnel is designed to educate individuals for responsible positions as counselors, counseling psychologists, counselor educators, and counseling and personnel services administrators. Program graduates are employed in these positions in a variety of settings, including colleges, community colleges, universities, community mental health agencies, public school systems, private counseling services, substance abuse services, and hospitals.

From the viewpoint of the Counseling and Personnel faculty, graduate 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 a 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: Carol F. Sheffer, Chairperson; Harold W. Boles, Robert O. Brinkerhoff, Mary Anne Bunda, James A. Davenport, Richard E. Munsterman, James R. Sanders, Uldis Smidchens, Charles C. Warfield, Donald C. Weaver. Department office is located in Room 3102, Sangren Hall.

The College of Education offers, through the Departments of Educational Leadership, 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 leaders of personal and professional stature who are knowledgeable and competent to exercise leadership in organization. A variety of educational experiences is arranged to educate qualified students in the technical, conceptual, and human skills required of all educational/organizational 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 agencies of our society, and a high degree of competence in human relations.

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

Following 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 individual 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 an 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 and/or chief executive officer, a manager or director of a private school; or a manager or director of a social service organization or a business or industrial unit.

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 schools, service agencies, or industry.

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

*Certain career goals within the program may alter the number of hours required in these areas. Among the areas of faculty expertise available to students are: community education, early childhood education, evaluation, higher education, leadership, media and technology, and training and development.
Mathematics
Yousef Alavi, Chairperson of Advisers
Room 3319, Everett Tower

The Doctor of Philosophy degree program in Mathematics is designed to give the student a broad and 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, mathematical 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, statistics, 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 Departmental 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 one-semester course in Complex Analysis; (2) an approved graduate sequence in some other 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
Howard Farris, Program Committee Chairperson
Julie Voss, Program Secretary
Room 258, Wood Hall

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 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.)
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 approved practicum and/or internship, completion of a fifteen credit hour dissertation in Behavior Analysis, and 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 and American sign language, language 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 and 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 90 hours of approved course credit, demonstration of competence in two research tools, submission of an approved review paper and two area examinations, the oral defense of the dissertation research before the student's doctoral committee, 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 aid may be obtained from the program coordinator.

**Public Administration**

Peter Kobrak, Adviser
Center for Public Administration Programs
B-1, Hillside Building-East

The Doctoral program in Public Administration is designed for those who have several years of experience in administrative or staff positions and wish to develop managerial and analytic skills which will enable them to assume positions of greater responsibility and authority. Courses in the DPA program focus on the analysis, evaluation, and implementation of public policy. The program is structured to provide decision-makers with a more sophisticated understanding of the total governing process. Completion of the DPA will provide candidates the background to analyze a wider range of alternative policies and to weigh competing choices in the decision-making process.

Courses will be taught by graduate faculty members drawn from several departments and colleges at Western Michigan University. The program is offered in Lansing and is administered by the Center for Public Administration Programs through the WMU Lansing Study Center. Although the program is primarily intended for upper level state employees, others are welcome to apply. Admissions and other program requirements for the DPA include those applicable to doctoral study at WMU contained in the Graduate College Bulletin plus those outlined below.

**Admissions Requirements**

1. Master's degree in Public Administration or related area. Prerequisites in several areas of coursework are also required.
2. At least four years of experience in a supervisory or administrative staff position.
3. Two letters of recommendation from persons acquainted with applicant's professional work.
4. Two letters of recommendation from persons acquainted with applicant's academic work.
5. A career resume.

**Program Requirements**

1. Sixty semester hours of course work beyond the Master's
3. Satisfactory performance on Qualifying Examinations in Research Methods and in Administrative Theory.

The sixty hours of coursework are divided into five modules which contain the following courses:

**RESEARCH MODULE:**

- **PADM 691** Statistics for Public Administrators . . . . 3 hours
- **PADM 681** Management Systems . . . . 3 hours
- **PADM 682** Decision Theory . . . . 3 hours
- **PADM 725** Doctoral Research Seminar . . . . 3 hours

**POLICY FORMULATION MODULE:**

- **PADM 671** The Public Good . . . . 3 hours
- **PADM 672** Historical and Comparative Analysis of Public Policy . . . . 3 hours
- **PADM 673** Current Problems of Public Policy . . . . 3 hours

**POLICY IMPLEMENTATION MODULE:**

- **PADM 674** Human Behavior in Public Organizations . . . . 3 hours
- **PADM 675** Advanced Administrative Theory . . . . 3 hours
- **PADM 676** Cases in Public Policy Implementation . . . . 3 hours
- **PADM 677** Inter-Jurisdictional Processes and Program Implementation . . . . 3 hours
work in appropriate courses dealing with environmental issues offered in such departments as: Geography, Economics, Political Science, and Sociology. This option is designed to prepare graduates to be, in addition to those career possibilities stated above, (1) developers, teachers, and/or administrators of academic environmental science programs or (2) consultants in environmental education or (3) advisers to developing nature centers and other environmental education centers or (4) supervisors of student teachers in conservation and environmental science courses or (5) supervisors of elementary and secondary school environmental science programs, or (6) environmental managers, including individuals with expertise in the areas of management of energy and material resources.

Admission requirements
The minimum admission requirements to this degree program are an undergraduate major in one science (Biology, Biomedical Sciences, Chemistry, Earth Science, Geology, or Physics) and an undergraduate minor in a second science. Students electing Option I should have a minor in a third science and a minimum of one year of undergraduate work in a fourth science. It is expected that all students in the program will have some undergraduate preparation in each of the four sciences: Biology, Chemistry, Geology, and Physics. Students entering with less than these requirements will be expected to complete them at the undergraduate level. Undergraduate deficiencies may be made up after admission to the doctoral program. In addition, all students are expected to meet the regular admission requirements established by The Graduate College.

Program requirements
Individual programs are planned by the student in consultation with faculty representatives from the various science departments and the College of Education. The ninety-hour program consists of the following:

1. Science and related areas:
   - Option I: Twenty hours of graduate credit in one of the following sciences: Biology, Chemistry, Geology (Earth Science), or Physics. Twenty hours of graduate credit in two other sciences (ten hours in each)
   - Option II: Twenty hours of graduate work in one of the following sciences: Biology, Chemistry, Geology (Earth Science), or Physics. Ten hours of graduate work in a second science.
   - Ten hours of courses dealing with environmental issues offered in such departments as: Geography, Political Science, etc.

2. Professional Education: Twenty to twenty-one hours of graduate credit.
3. Research tools: Six to nine hours.
4. Research or statistics and computer programming. Students are required to demonstrate competency in the two research tools, and this is usually done by completing satisfactorily one or two courses in each research tool area.
5. Science Education Seminar. Four to six hours.
6. Electives: Zero-five hours to make a total of ninety hours and to include additional courses from science, education, research, or other appropriate areas.

At approximately the end of the second year of full-time graduate study or at the time most of the course work is completed, the student will take the Comprehensive Examination. The examination consists of two parts, one of which is written and the other oral. The written part of the examination consists of two sections, one over the science areas studied and the other over the area of Science Education. Each of these is a six-hour examination, and they are given approximately one week apart. The oral examination consists of the presentation and defense of an original research proposal other than the dissertation research. The research and dissertation are completed under the direction of a major adviser and a committee. The major adviser is selected by the student, and the committee members are selected by the student in consultation with the major adviser. About one-third of the program is devoted to research, and students are encouraged to begin their research as early in their program as possible. The research problem generally is formulated by the student and is in an area of Science Education, Environmental Science, or a science topic approved by the student's Doctoral Advising Committee.

The residency requirement for this degree program is one calendar year of full-time study on the campus. To be admitted to candidacy for the doctoral degree, the student will be expected to have completed the course work, the research tools, the comprehensive examination, and also two years of successful teaching at the elementary or secondary level in addition to the other requirements of all doctoral degree programs. Exceptions to the teaching requirement may be made for students in Option II on an individual basis.
Sociology

Director, Graduate Studies:
Robert F. Wait, 2409 Sangren Hall
Advisers: James C. Petersen,
2415, Sangren Hall
Morton O. Wagenfeld,
2509, 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 department chair.

Special Education
Advisers: Dr. Joseph J. Eisenbach,
Dr. Alonzo E. Hannaford,
Dr. Donald F. Sellin,
Dr. Morvin A. Wirtz
Office: 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 have acquired a minimum of two years of successful professional experience in serving the handicapped. 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 graduate faculty of the Department of Special Education.

Upon acceptance to the Department, a Program Adviser will be designated to work with the student in developing the student’s overall program. A preliminary diagnostic and planning examination will be completed during the first month of the first semester. Examination results will be used by the Program Adviser in designing the student’s formal program in study. In addition to the prescribed coursework, the student will complete an internship in college teaching and an internship in administration of programs in special education. During the last semester of coursework, the student will be required to successfully complete a written comprehensive examination.

All students in the program will be required to successfully complete a scholarly dissertation. Following the guidelines established by The Graduate College, the student will select a dissertation adviser and a dissertation committee who will guide the student in the development of a dissertation. Following the completion of the dissertation, the student will be required to successfully complete an oral defense of the dissertation to be conducted by the dissertation adviser, the dissertation committee, and an additional reader selected by the student and the dissertation adviser from the graduate faculty outside the Department of Special Education.
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


The College of Applied Sciences offers graduate programs in Engineering, Manufacturing Administration, Home Economics, and Paper Science and Engineering and cooperates with other Colleges in providing Master's degree programs in Teaching of Distributive Education, Teaching of Home Economics, Teaching of Industrial Education, and Operations Research.

Course descriptions: Numbers following course title indicate hours of lecture and laboratory per week during a semester (lecture hours—laboratory hours).
Agriculture (AGR)
Barnett, Head; Associate Professor Benne; Assistant Professor Houdek

Open To Upperclass and Graduate Students

520 Soil Science (3-0) 3 hrs.
Treats soil as a natural resource and investigates 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: AGR 320 or approval of instructor.

Distributive Education

(D ED)
Dannenberg, Chairperson; Professor Humbert.

Open to Upperclass and Graduate Students

500 Seminar in Distributive Education (3-0) 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 (2-0) 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 (3-0) 3 hrs.
This course deals with the methods and techniques used in teaching related subjects to students on cooperative work-study programs, special emphasis will be given to group and individual methods of instruction.

573 Coordination Techniques in Cooperative Education (3-0) 3 hrs.
This is a study of duties and responsibilities of the teacher-coordinator, the organization and establishment of training programs, supervision of trainees on the job, development of individual training programs, establishing working relationships between the school, business, and home, and participation activities in the community, especially adapted to prospective coordinators.

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.

596 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.

Open to Graduate Students Only

671 Curriculum Development in Distributive Education (2-0) 2 hrs.
This course provides for mastery of the techniques and skills necessary for curriculum development in the high school, community college, area vocational center, and adult education programs. Recommended for cooperative teacher coordinators.

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

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

Electrical Engineering

(EE)
Hessels, Chairperson; Professors Wilcox, Davis, VanderKooi; Assistant Professor Alag.

Open to Upperclass and Graduate Students

510 Introductory Power Systems (3-0) 3 hrs.
An introduction to electrical power systems for non-electrical engineering students. Prerequisites: EE 211, Math 374.

530 Power System Analysis I (3-0) 3 hrs.
Modern systems, control, optimization, network theories, matrix language, computer methods, steady state. Prerequisite: EE 430.

550 Digital Signal Processing (3-0) 3 hrs.
Introduction to discrete systems, design and implementation of digital filters, applications of fast Fourier transforms. Prerequisite: EE 371.

561 Electromagnetic Fields (3-0) 3 hrs.
Time-varying electromagnetic fields with applications to wave guides and antennas. Prerequisite: EE 361 and 371.

Open to Graduate Students Only

605 Microcomputer Systems (2-3) 3 hrs.
Analysis and design of microcomputer-based systems with emphasis on applications. Prerequisite: A computer programming course.

610 Network Synthesis (3-0) 3 hrs.
Synthesis of active and passive networks. Prerequisite: EE 310.

630 Power Systems Analysis II (3-0) 3 hrs.
Continuation of EE 530, with emphasis on transient analysis of power systems. Prerequisite: EE 530.

670 Modern Control Theory (3-0) 3 hrs.
Modern control theory using "state variable" formulations provides a unified approach to a wide variety of problems. Depend on matrix theory and linear algebra. Prerequisite: EE 371 or permission of instructor.

695 Special Topics in Electrical Engineering 1-4 hrs.
Covers special topics not included in regular classes. May be repeated for credit with a different topic. Consent of instructor.

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

Home Economics

(H EC)
Coates, Chairperson; Associate Professor Petersons; Assistant Professor Steinhaus.

Each student in an M.A. program in Home Economics is required to have a
planned program on file before completion of twelve graduate hours, and such plan must include at least two credits in HEC 710, Independent Research.

Open to Upperclass and Graduate Students

500 Problems in Nutrition (3-0) 3 hrs.
A discussion of current problems in nutrition. Open to dietetics majors. HEC 210 or equivalent.

502 Textile Clinic (2-0) 2 hrs.
Investigation of textile problems, resources and research. Prerequisite: HEC 200, or permission of instructor.

504 The Socio-Psychological Aspects of Clothing (2) Fall—odd yrs., Summer—even yrs. 2 hrs.
Social and psychological implications of clothing for the individual and family.

519 Experimental Foods Research (0-4) 2 hrs.
Individual research in chemical and physical properties of foods. Development of research studies, writing and reporting techniques. Prerequisite: HEC 418.

590 Project/Problems in Home Economics 1-4 hrs.
Directed independent project in specialized area of Home Economics. Approval of department chairman.

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

Open to Graduate Students Only

600 Clothing Techniques (2-2) 2 hrs.
Meets the needs of the advanced student in clothing construction techniques.

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

604 Studies in Textiles and Clothing (2-0) 2 hrs.
Concentrated study of specifics within these fields relating to the interests of the students. Can be repeated if topic is different.

606 Seminar in Home Management (2-0) 2 hrs.
Utilization of case studies and research findings for the purpose of analyzing and understanding home management.

608 Seminar in Textiles and Clothing (2-0) 2 hrs.
Investigation and discussion of the current research and literature in textiles and clothing. Repeatable if topic varies.

610 Nutrition in the Life Cycle (2-0) 2 hrs.
Concentrated study of nutritional needs throughout the life cycle. Emphasis on (1) maternal and child nutrition, (2) adolescent and young adult nutrition, and (3) aging and nutrition on a three-year rotation basis. Student can enroll for any stage or for each stage in subsequent semesters. HEC 409 or 500.

612 Seminar in Foods and Nutrition (2-0) 2 hrs.
Investigation and discussion of the current research and literature in foods and nutrition.

614 Nutrient Metabolism I (2-0) 2 hrs.
Study of the functions, requirements, and interrelationships in metabolism of energy, protein, carbohydrate, and lipids.

615 Nutrient Metabolism II (2-0) 2 hrs.
Study of the functions, requirements, and interrelationships in metabolism of vitamins and minerals.

616 Consumer Education (2-0) 2 hrs.
Marketing problems and consumer credit. Students work on individual problems which concern the techniques of buying consumer goods.

618 Teaching of Specific Subjects in Home Economics (2-0) 2 hrs.
Intensive study of problems in the specialized areas of Foods and Nutrition, Home Furnishings, Textiles and Clothing, etc. May enroll more than once. Maximum credit not to exceed four hours.

622 Occupational Laboratory Experience 2-3 hrs.
A supervised experience program in a specific occupational area. Prerequisite: HEC 642 or permission of instructor.

636 Teaching for Independent Living (2-3) 4 hrs.
Provides a practical background and a basic understanding of skills and problems of the homebound and visually impaired.

640 Supervision of Home Economics (3-0) 3 hrs.
New developments in the teaching of home economics and the supervision of student teaching. Problems of students will receive major consideration.

642 Occupational Education (2-0) 2-6 hrs.
Planning for Home Economics wage-earning programs at the secondary and adult levels. (Six areas.)

644 Curriculum Planning and Evaluation in Home Economics (3-0) 3 hrs.
Relationship of changes in family living and society to developmental needs of students as a basis for curriculum building in junior and senior high school. Techniques of evaluation applicable in home economics.

648 Adult Education in Homemaking (2-0) 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 (2-0) 2 hrs.
Newer aspects of time and motion study and work simplification. Analysis of the use of resources for achieving goals in stages of family life cycle.

652 Family Life Education (3-0) 3 hrs.
Current issues, trends, and methods in teaching family life education.

654 Housing (2-0) 2 hrs.
Economic and social aspects of housing. Single, duplex, and multiple housing problems considered.

660 Studies in Family Relationships (3-0) 3 hrs.
Concentrated study of specifics in family relationships.

662 Seminar in Family Relationships (3-0) 3 hrs.
Investigation and discussion of current research and literature in family relationships.

664 Seminar in Home Economics Education (2-0) 2 hrs.
Investigation and discussion of current research and literature in Home Economics education.
666 Studies in Home Economics Education (2-0)
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 Independent Research—
Master's and Specialist
2-6 hrs.

Industrial Education
(I ED)
Feirer, Head; Professors Bendix, Byle, Hutchings, Lindbeck, Risher, Associate Professors Atkins, Bruce, Darling, Johnson, Klammer, Rayford, Schwersinske.

Open to Upperclass and Graduate Students

500 Furniture Production (1-3)
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 (1-3)
2 hrs.
Experience in and study of cellulose materials and their use in construction and manufacture, including characteristics of lumber, hand-made wood products, the materials related to the fabrication of wood products, applied research, and testing. Prerequisite: I ED 100.

505 Problems in Woodworking (2-2)
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.

508 Related Building Trades (1-5)
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 (2-3)
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. Prerequisites: I ED 305, 406, 407.

520 Architectural Graphics (1-5)
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. Prerequisites: I ED 120, or equivalent, and 305 (can be taken simultaneously).

522 Laboratory Practices in Drafting (1-3)
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.

523 Advanced Drafting Practice (1-3)
2 hrs.
Advanced laboratory experiences in mechanical, architectural and machine drawing in conjunction with study of current technical literature. Written reports required. Advanced instruction in engineering drawing and descriptive geometry included.

524 Commercial Architectural Design (1-3)
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 (1-3)
2 hrs.
Intensive study of angular and parallel perspective. Emphasis placed on entourage and rendering techniques in preparing architectural presentation drawings.

530 Research in Machine Shop Practices (1-3)
2 hrs.
For teachers to study and develop advanced techniques in machine technology.

538 Problems in Metalworking (1-3)
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.

545 Safety Practices and Compliance (2-0)
2 hrs.
Accident prevention, safeguarding and safe operation of industrial equipment emphasized. OSHA and MISHA legal responsibility and compliance treated.

547 Modern Technological Practices (0-4)
2-6 hrs.
Study, development and application of construction, industry and printing management/marketing. Technical short courses offered by industry may be utilized. May be elected in two hour blocks to a maximum of six hours.

548 Modern Technological Practices (2-6 hrs.
Continuation of I ED 547.

551 Halftone Photo Processes (1-5)
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 (2-0)
2 hrs.
Continuation of Estimating 452. Special emphasis on use of Printing Industry Production Standards in printing printed materials. Prerequisite: I ED 452.

553 Printing Production Management (3-0)
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 Problems in Electricity/Electronics (1-3)
2 hrs.
Course is designed to select specific areas in electricity/electronics and study in depth current developments and industrial practices in these areas.

561 Industrial Practices in Electricity/Electronics (1-3)
2 hrs.
Opportunity to analyze and interpret current developments in electricity and electronics. Research of a specific area and a report are required.

570 Arts and Crafts Techniques (1-3)
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 (2-0) 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 (1-3) 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 (1-3) 2 hrs. Experience in drawing, woodworking, metalworking, electricity, and craftwork required. Includes selection, development, and preparation of instructional materials and instructional media for multi activity instruction at junior and senior high school levels. Prerequisite. I ED 342 and 344. (344 can be taken concurrently.)

578 Plastics Technology (1-3) 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, lamination, casting, reinforcing, foaming, coating, and general fabrication.

582 Applied Fluid Power (1-3) 2 hrs. Deals with fluid power development transmission and control systems. Laboratory experience requires application of fluid power to manual or electrically powered machines.

588 Power Laboratory Techniques (1-3) 2 hrs. Advanced course treating recent applications of energy and power. Emphasis on laboratory planning and equipping, and instructional material evaluation and application to instructors. Prerequisite. I ED 180, or consent.

590 Industrial Arts for the Elementary School (1-3) 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 teaching unit. Offered only through Continuing Education.

593 Arts and Crafts (1-3) 2 hrs. Covers craft techniques in sketching, leather, wood, and related experiences. Emphasis on procedures, methods, and materials.

596 Consumer Automobile Principles (1-2) 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 highway safety instructors. Not open to students with credit in I ED 384. TRAN 121, 221, 222, 224, 322, 326, or 421.

598 Readings in Education/Technology 2.4 hrs. Directed individual or small group study of topics or areas not otherwise treated in departmental courses. Head of department consent required.

Open to Graduate Students Only

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.

616 Occupational Selection and Training (3-0) 3 hrs. Primarily designed for vocational-technical teachers and administrators. Special emphasis on adapting instruction to individual needs of disadvantaged and other groups. Job cluster vs. specific training, orientation and selection of students, program evaluation and placement of trainees.

643 Measurement and Evaluation in Industrial Education (2-0) 2 hrs. Preparing and using written and performance tests. Includes interpretation of test results and evaluation of achievement.

644 Product Planning (2-0) 2 hrs. Principles of design and their application to modern products of industrial technology construction and printing.

645 Planning for Production (2-0) 2 hrs. Planning and selecting equipment and supplies for an industrial facility. Principles of planning and equipment selection related to current industrial education philosophy.

646 Teaching Problems in Industrial Education (2-0) 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.

650 Advanced Problems in Graphic Arts (0-3) 2 hrs. Individual student study of advanced technical problems in graphic arts. Advanced instruction in imposition, photography, and computerized composition available.

671 Industrial Materials (2-0) 2 hrs. Study of basic structures of wood, plastic, metallic, ceramic, and allied materials. Relation of properties of materials to structure included. Laboratory and testing experiences required.

697 Technical Problems 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 a maximum of three semester hours credits.

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

700 Master's Thesis 6 hrs.

710 Independent 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

512 Principles of Vocational Education (3-0)
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.

513 Technical Education Methods (3-0)
3 hrs.

514 Workshop in Vocational-Technical Education (1-3 hrs.)
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.

Open to Graduate Students Only

611 Philosophy of Vocational Education (2-0)
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.

614 Administration and Supervision of Practical Arts and Vocational Education (2-0)
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 (2-0)
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.

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

502 Industrial Supervision (3-0)
3 hrs.
The supervisor's duties, obligations, and responsibilities in his/her industrial role. The practical application of behavioral science principles to the industrial environment. Not open to those with credit in IEGM 403.

504 Facilities Planning and Design (3-0)
3 hrs.
An analytical approach to the planning and design of manufacturing facilities and material handling systems. Prerequisite: IEGM 404.

505 Advanced Methods Engineering (3-0)
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.

508 Advanced Quality Control (3-0)
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 (3-0)
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 (2-3)
3 hrs.
A survey of research on the adaptation of equipment, products, and environment to human use. Prerequisite: Permission of instructor. (Cross-listed with PSY 542.)

545 Health Care Systems Improvement (3-0)
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 and Principles for Manufacturing Administration (3-0)
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.

601 Engineering Seminar (1-0)
1 hr.
A seminar concerned with current topics in engineering with emphasis on application of engineering principles and professionalism. May be repeated for up to three hours. Prerequisite: Permission of instructor.

604 Facilities Planning and Design (3-0)
3 hrs.
An analytical approach to the planning and design of manufacturing facilities and material handling systems. Prerequisite: IEGM 404.

606 Capital Budgeting for Engineers (3-0)
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 (3-0) 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 (3-0) 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 (3-0) 3 hrs.
Topics include the time value of goods by Industry and government. Acquisition and retirement of capital. Application of Lasers for welding. Use of 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. Prerequisites: ME 221, 270, 353.

621 Welding Design Analysis (3-0) 3 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. Topics announced and schedule of classes may be repeated for credit with a different topic. Prerequisite: Permission 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. Prerequisite: Consent of instructor.

553 Industrial Ventilation (3-0) 3 hrs.
Design and testing of systems to control air quality in laboratories and industrial environments. Prerequisite: ME 356 or consent.

553 Advanced Product Design (3-0) 3 hrs.
An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout. Prerequisites: ME 360, 453.

558 Mechanical Vibrations (3-0) 3 hrs. Winter
A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems. Prerequisites: ME 355, MATH 374.

560 Engineering Analysis (3-0) 3 hrs. Fall
Application of vector analysis and differential equations to the solution of complex engineering problems. Prerequisite: ME 360 or equivalent.

572 X-Ray Diffraction (2-3) 3 hrs. Fall-Even Yrs.
X-Ray methods of crystal structure determination are applied to non-destructive testing, cold working, age hardening and phase changes in metal alloys. Prerequisites: MATH 123, PHYS 210.

573 Engineering Materials (3-0) 3 hrs. Spring-Odd Yrs.
Material selection for resistance to both load and environment. Design parameters for material selection and various metal systems, corrosion, service failures and mechanical behavior or engineering alloys at high and low temperatures. Prerequisite: ME 373.

584 Casting Design (2-3) 3 hrs. Fall-Odd Yrs.
Engineering design of castings based on stress analysis and capabilities of production casting processes. Prerequisites: ME 280, 256.

589 Studies in Cast Metals Technology 1-2 hrs. Spring
Metallurgy of ferrous casting and melting. Solidification, risering, gating, ferrous castings, sand control and sand cases. Prerequisite: Consent of instructor.

593 Advanced Fluid Dynamics (3-0) 3 hrs. Fall-Odd Yrs.
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 356, MATH 374.

631 Advanced Heat Transfer (3-0) 3 hrs. Fall-Even Yrs.
Advanced topics in conduction, convection, and radiation heat transfer with emphasis on industrial applications. Prerequisite: ME 431.

632 Energy Resources and Conversion (3-0) 3 hrs. Fall
Availability and economic utilization of dynamic limitations. Energy conversion applications. Fission and fusion. Applications of solar, water, wind, and geothermal energy. Prerequisite: ME 332 or 330.

653 Advanced Strength of Materials (3-0) 3 hrs. Winter-Even Yrs.

660 Advanced Control Systems (3-0) 3 hrs. Winter-Odd Yrs.
Analysis of nonlinear systems and systems compensation. Application to fluid dynamics, pneumatics, electrical circuits, and inertial guidance. Prerequisite: ME 360 or EE 470.

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. Fall, Winter, Spring, Summer
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. Gottesman Professor
Janes; Associate Professors Fisher, Kline, Peterson.

Open to Upperclass and Graduate Students

530 Polymer and Surface Chemistry 3 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 are considered in detail. Prerequisite: CHEM 361 or 365.

560 Advanced Pulp and Paper Engineering 3 hrs.
A unified consideration of the pulp and paper plant and its sub-systems, 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 203, 204, and 307 (or equivalent).

Open to Graduate Students Only

600 Surface and Colloid Chemistry (2-3) 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, electrophoretic potential, swelling and shrinkage of gels, ion exchange, surface active agents, detergency, and retention of particles.

620 Paper, Printing, and Ink (2-3) 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 (2-3) 3 hrs.
The theories of flow of non-Newtonian liquids are discussed as they apply to pigmented coating systems. Further theories are formulated and evaluated in the lab to attempt to explain the behavior of coating under the shear conditions found in coating application systems.

660 Mechanics and Optics of Paper and Fibers (2-3) 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 (3-0) 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.

690 Pulp and Paper Operations I (2-3) 3 hrs.
A study of unit operations integral to pulp and paper manufacturing. The interdependence, design and optimization of the unit processes are included. The pulp manufacturing and chemical recovery phases are emphasized.

691 Pulp and Paper Operations II (2-3) 3 hrs.
Continuation of the study of the unit operations integral to pulp and paper manufacturing. The paper manufacturing phase is emphasized while completing the systematic study of unit operations used in the industry.

A study of the control of pulping and papermaking processes with emphasis on computer control strategies and the instrument systems unique to the paper industry. A unit operations and process modeling approach will be taken to familiarize the student with applications of these techniques to the paper industry.

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

700 Master's Thesis 6 hrs.

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

712 Professional Field Experience 2-12 hrs.
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
Public Administration
Religion
Science Division
Social Science Division
Sociology
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 of 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, Jacob, Maher; Associate Professors E. Garland, R. Loeffler, Sundick; Assistant Professors Cremin, Hirth, Kennedy, 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 Circumpolar) or of selected theoretical problems (e.g., artifact typology, prehistoric ecology). The topic to be studied will be announced each semester. May be repeated for credit. Prerequisite: 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 biodynamics of selected cultivars; and the cultural systems which have arisen from the economic foundation of plant domestication. Prerequisite: ANTH 210 or consent of instructor.

503 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 folklore 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.

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 revolthisual 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. Prerequisite: 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. Prerequisite: ANTH 220, 240, or consent of instructor.

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, Fowler, Goodnight, Holt, VanderBeek, Associate Professors Engemann, Inseberg, Assistant Professors Cowan, Davey, Erickson, Hughes, Mahan.

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, cell, and organ levels will be studied. Plants, animals, and microorganisms will be used as examples. Prerequisite: BIO 101, 102.

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.
A 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 Phycology 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 ecology, reproductive cycles, and classification of algae, fungi, and bryophytes are studied in depth in both the field and laboratory. Independent project involving the culture of some of these organisms as a part of the laboratory experience. A paper is required. Prerequisite: BIOL 102.

529 Biology of Vascular Plants 3 hrs.
Detailed comparative studies are made of the structure, reproductive cycles, and phylogeny of vascular plants involving both field (in season) and laboratory observations. Independent projects and a paper may be required. Prerequisite: BIOL 102.

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 and 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.
A study of biological communities, with particular emphasis on those accessible for use by public, schools, e.g., school grounds, vacant lots, road sides, 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, birdbanding, and preparation of study skins are included. Prerequisite: Consent of instructor.

548 Animal Ecology 3 hrs.
Characteristics of animal populations, their interactions with other populations, and the role of animals in the functioning of ecosystems. Prerequisite: A course in ecology and a course in statistics, or consent of instructor.

549 Ecology of Southwestern Michigan 3 hrs.
Surveys and analyses of major and minor ecosystems of this region as to physical environment, composition, structure, and function. Prerequisite: A course in ecology and some course work in taxonomic biology, geology, or geography.

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. Prerequisite: 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.

555 Marine Biology 3 hrs.
A survey of marine environments and organisms. Special adaptations of the organisms and their community organization are emphasized.

557 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.

558 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.

559 Radiation Biology 3 hrs.
A study of the fundamentals of radiobiology, including radioactive decay, radiation measurements, isotope 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 to adaptation, evolution, behavior, and ecology of major groups. Classification, museum, and field methods will be stressed in the laboratory. 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.
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.
mechanisms. The regulatory nature of hormones in developmental processes, in adaptation, and in disease processes will be stressed. Prerequisite: BMED 350; biochemistry recommended.

519 Endocrinology Laboratory 3 hrs.
Laboratory experience in endocrinological concepts involved in endocrine research and clinical testing. Prerequisite: Permission of instructor.

520 Human Genetics Winter '80 and '82, 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 Cytogenetics Winter '81, 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 '80 and '81, 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.

525 Genetics Laboratory 3 hrs.
Students will acquire techniques currently used in the field of genetics. Although all areas of genetic interest will be presented, emphasis will be placed on the areas of Cytogenetic, biochemical genetic, genetic toxicology and genetic counseling techniques which are currently used in medical, industrial biomedical research areas. In addition time will be provided for in depth experimentation. Prerequisites: BMED 250 and a biochemistry course.

531 Biology of Aging Every Fall '80 and '81, 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 '80 and '81, 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.

534 Virology Winter '80 and '81, 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 '80 and '81, 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 '80 and '81, 3 hrs.
A study of the function and microscopic anatomy of mammalian tissues.

540 Cell and Organ Culture Fall '80 and '81, 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 '80 and '81, 2-3 hrs.
A variety of techniques, including cellodin, paraffin, decalification, 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 '80 and '81, 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 '80, 4 hrs.
A study of 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 '80, 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 Embryology
Winter '81, 4 hrs.
Embryology is the study of the development of an organism from a single fertilized cell to a complex multicellular fetus. This course will present this material from both a classical descriptive and experimental cellular point of view. In addition to the lecture, laboratory exercises will provide experience in the recognition of the various stages of development and in the culturing and manipulations of embryos in vivo and in vitro. Prerequisites: BMED 113, 250, or equivalent.

597 Medical Service Representative Seminar
2 hrs.
Seminars will be presented on various topics relevant to Medical Service representatives. Prerequisite: Permission of instructor.

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 Seminar: Variable Topics
Spring '80 and '81, 2-6 hrs.
Several seminars in various areas of Biomedical Sciences will be offered. The student's record will indicate those seminars in which he/she has participated. May be repeated for credit. Prerequisite: Consent of instructor.

613 Sensory Physiology
Fall '80, 3 hrs.
A study of basic function and recent developments with emphasis on mammalian systems. Prerequisite: BMED 240 or equivalent.

620 Issues in Genetics
Fall '80 and '81, 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: One 500-level Genetics course. Course repeatable for credit.

630 Electron Microscopic Techniques
Spring '81, 3 hrs.
A technique-oriented laboratory stressing the various preparatory procedures employed for viewing biological materials. Prerequisite: Consent of instructor.

631 Experimental Microbial Physiology
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
Spring '80, 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 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 particular materials preparation. The student will conduct detailed examinations of his/her preparations and prepare critical critiques. Prerequisites: Consent of instructor.

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.
Chemistry (CHEM)


Open to Underclass and Graduate Students

505 Chemical Literature
1 hr.
An introduction to the use of the various types of chemical literature such as journals, handbooks, abstracts, monographs, government and institutional publications, and patents. Problems in the course require literature searches in analytical, inorganic, biological, organic, and physical chemistry fields. Prerequisite: Twenty-four hours of chemistry.

506 Chemical Laboratory Safety
1 hr.
A study of toxic, corrosive, flammable, explosive, electrical, mechanical, thermal, and radiant energy hazards frequently encountered in chemical laboratory work. Emphasis is placed on precautionary methods to avoid damaging accidents and on emergency procedures to apply when accidents occur. Prerequisite: Twenty-four hours of chemistry.

509 Topics in Chemistry
3 hrs.
A topic is presented in greater depth or from a perspective different from that of a typical undergraduate course. Representative topics, such as pesticides and drugs, industrial chemistry, chemical pollution, etc., according to student interests and requests. Prerequisite: Sixteen hours of chemistry or consent of instructor.

510 Inorganic Chemistry
4 hrs.
The course includes descriptive and theoretical inorganic chemistry as well as preparation of different types of inorganic compounds. Prerequisite or concurrent enrollment: 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. Prerequisites or concurrent enrollment: CHEM 431, 436.

530 Introduction to Spectroscopy and Molecular Structure
3 hrs.
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 ultraviolet regions and with magnetic fields as applied to nuclear resonance and electron spin resonance. Prerequisite: CHEM 431.

535 Introduction to Physical Chemistry
3 hrs.
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
3 hrs.
The chemistry, properties, and molecular biology of proteins and nucleic acids. Includes discussions of amino acids, enzymes, and biochemical energetics. Prerequisites: CHEM 361 and 430 or 535.

552 Biochemistry I with Laboratory
4 hrs.
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. Prerequisites: CHEM 361 and 430 or 535.

554 Biochemistry II
3 hrs.
Continuation of 550. Chemistry and metabolism of carbohydrates, and lipids. Metabolism of amino acids and photosynthesis. Prerequisite: CHEM 550 or 552.

556 Biochemistry II with Laboratory
4 hrs.
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. Prerequisite: CHEM 550 or 552.

560 Qualitative and Spectroscopic Analysis of Organic Compounds
4 hrs.
A course in the spectroscopic and chemical methods of identification of organic compounds in the pure state and in mixtures which has as a secondary goal the development of deductive reasoning in the field of organic chemistry. Prerequisites: CHEM 361 and twenty-four hours of chemistry.

564 Drugs and Pesticides
3 hrs.
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. Prerequisite: 361 or 365.

570 Polymer Chemistry
3 hrs.
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
3 hrs.
This course is taught from the point of view of the history of chemical theory in which the evidence for the theories is critically presented. Prerequisite: Sixteen hours of chemistry, including at least one semester organic and inorganic.

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

Open to Graduate Students Only

601 Graduate Seminar
1 hr.
Graduate seminar in chemistry. Required of all candidates for advanced degrees in chemistry. Graded on a Credit/No Credit basis. (Two semesters; 1 hr. credit.)

605 Advanced Chemistry Laboratory Technique
1 hr.
Content of 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
3 hrs.
Covers the principles in inorganic chemistry and the chemical elements. Such topics as extranuclear structure of the atoms, periodic classification of the elements, valency and the...
chemical bond, complex ions and coordination compounds, acids and bases, and nonaqueous solvents are included in the study of chemical principles. The remainder of the course concerns the chemical elements and their compounds. Prerequisite: CHEM 510.

611 Advanced Inorganic Chemistry 3 hrs.
The chemistry of the Transition elements. Consideration of the electronic and magnetic states of the transition metals and their compounds; the symmetry, stability, and reaction mechanisms of coordination compounds; application of bonding theories; systematic chemistry of the transition and inner transition elements. Prerequisite: CHEM 510.

612 Topics in Inorganic Chemistry 3 hrs.
A cooperative investigation of one or more topics of major consequence 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 3 hrs.
A course in the fundamental principles underlying chemical methods of analysis. Special emphasis is placed on equilibria, kinetics, and mechanisms of the important types of chemical reactions (acid-base, precipitation, complex formation, and redox) involved in chemical analysis; on methods of separation (precipitation, electrodeposition, and distillation techniques), and on the application of statistical methods of sampling, experiment design, and interpretation of results. Prerequisite: CHEM 431.

624 Analytical Spectroscopy 3 hrs.
A comprehensive treatment of those instrumental techniques which are based upon either the emission or absorption of energy by matter. Emission spectroscopy, Raman spectroscopy, mass spectrometry, ultraviolet, visible, and infrared absorption spectroscopy, fluorimetry, and other selected topics. Prerequisite: CHEM 520.

625 Electroanalytical Chemistry 3 hrs.
The theory and application of electrochemical measurements are discussed with particular emphasis on the theoretical aspects of polarography, potentiometry, amperometry, conductometric titrations, and other selected topics. Prerequisite: CHEM 520.

626 Chemical Instrumentation 3 hrs.
Principles and characteristics of construction and design for chemical and optical instruments. Prerequisite: CHEM 520.

629 Topics in Analytical Chemistry 3 hrs.
Subject for a given semester will be determined by student needs and interests. Among the subjects are: (1) Functional Group Analysis; (2) Complexation in Analytical Chemistry; (3) Analytical Separations Techniques; (4) Non-aqueous Solvents in Analytical Chemistry. Prerequisite: A 600-level analytical course.

630 Advanced Physical Chemistry 3 hrs.
A study of the fundamentals of quantum mechanics and some of its applications to chemistry. Included are the exactly solvable systems, some approximation methods used for chemical bonds and in more complicated molecules, and introduction to group theory representations and character tables. Some prepared computer programs will be used. Prerequisite: CHEM 431.

633 Chemical Thermodynamics 3 hrs.
Includes a review of the three laws of thermodynamics; state functions, activities, partial molal qualities, thermodynamics of solutions, equilibrium, and statistical thermodynamics. Prerequisite: CHEM 431.

635 Chemical Kinetics 3 hrs.
Measurement of reaction rates, reaction rate theory, mechanisms of elementary processes, reactions in solution and on surfaces, complex reactions, application of kinetics to mechanisms, and photochemistry. Prerequisite: CHEM 431.

639 Topics in Advanced Physical Chemistry 3 hrs.
This is a lecture course, the content of which may vary from year to year depending on the lecturer. Anticipated topics are: (a) high temperature chemistry, (b) electrochemistry, (c) colloid and surface chemistry. Prerequisite: CHEM 431.

650 Proteins and Nucleic Acids 3 hrs.

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 554 or consent of instructor.

653 Enzymes 3 hrs.
A study of enzyme catalysis, kinetics, structure and mechanism, and a survey of experimental methods for determining these aspects of enzyme function. Prerequisite: CHEM 550.

659 Topics in Biochemistry 3 hrs.
Content of the course will vary depending upon student interest and availability of staff. Contemplated topics include advanced intermediary metabolism, viruses, cancer biochemistry, physical techniques. Prerequisite: CHEM 554 or consent of instructor.

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 the 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)

Dieker, Chairperson; Professors Brown, Buys, Helgesen, Smith; Associate Professors Cottrell, Crane, Heining, Jaks, Northouse, Pagel, Robbeck, Rossman, Sill, Stech, Assistant Professors Custer, Dahnke, Rhodes, Sherman, 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:

a. Oral Interpretation of Shakespeare
b. Oral Interpretation of the Bible
c. 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
c. Presenational Speaking
d. Political Communication

540 Studies in Mass Communication: Variable Topics
3 hrs.
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, communicating 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.
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. Topics include:
- Group Training, Theory, and Practice
- Family Communication
- Male/Female Communication
- Communication Auditing

571 Interpersonal Theories of Communication 3 hrs.
A study of the dynamics of interperson 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 communication 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 to 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 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.

591 Introduction to Communication Research 3 hrs.
In this introductory course, students will acquire skills and knowledge of basic research design, data collection, data analysis, computer usage, and report writing needed for the completion of a research project.

598 Independent Study 1-4 hrs.
A program for advanced students with an interest in pursuing independently a program of research, exclusive of projects in areas of special interest. To be arranged in consultation with a member of the staff and the Chairperson of the Department.

600 Listening 3 hrs.
Explores the role of listening in learning. Research in the field is examined and analyzed. Listening tests are taken and discussed. Class members design listening projects or research projects. Focus increases sensitivity to the impact of speech.

605 Special Topics in Communication 1-3 hrs.
Intensive 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 CAS Department, Third Floor, Sprague Tower. Six hours of CAS 505 and 605 may be accumulated as credit toward a Master's degree in CAS.

610 Seminar in Oral Interpretation: Variable Topics 3 hrs.
Oral interpretation as related to techniques and materials of individual and group readings. Provides opportunity to explore problems of various forms and practices in oral interpretation.

630 Seminar in Attitude Change: Variable Topics 3 hrs.
Explorations into selected topics in contemporary rhetoric. Possible topics, each of which may be taken for credit, include the following:
- Aesthetic of Confrontation
- Philosophy of Dialogue

640 Seminar in Mass Communication: Variable Topics 3 hrs.
Exploration of topics related to mass communication theory, process, and application. Topics vary from semester to semester, and students may take one or all topics for credit.

660 Seminar in Communication Education: Variable Topics 3 hrs.
Each student selects an area of interest which he/she pursues independently during the term and reports his/her findings periodically to his/her class and instructor. In addition, the history of the profession, ethics and professional practices, research in psychology and speech related to teaching speech are studied. Students may take one or all topics for credit.

664 Seminar in Creative Dramatics: Variable Topics 3 hrs.
Considers relationships of theory, materials, and techniques of creative dramatics to child development and creative teaching in the elementary school. Students may take one or all topics for credit.

670 Seminar in Communication: Variable Topics 3 hrs.
Exploration into selected topics in communication. Possible topics, each of which may be taken for credit, include:
- Current Issues in Communication
- Conference Leadership
- Communication and the Future
- Advanced Communication Theory
Computer Science (CS)

Williams, Chairperson; Professor
Meagher; Associate Professor Herman;
Assistant Professors Hamilton, John-
son, Kerstetter, Kountanis, Motokin.

Open to Upperclass and Graduate
Students

501 Computer Concepts for Public
Administrators
3 hrs.
A fundamentals course for students in
academic programs in Public Ad-
ministration. An introduction to how
computers work, how they are
programmed and their use in in-
formation systems. Students learn to
work with computer input and output
on the WMU DEC System-10 and write
at least one elementary computer
program. Course requirements include
several reports and a term project.
This course may not be used towards
a major or minor in Computer Science.

506 Scientific Programming
3 hrs.
Designed to give preparation in the use
of numerical methods on digital
computers for scientific and
engineering applications. The FOR-
TRAN 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 374) and
(CS 112 or 306). (Cross-listed with
MATH 506.)

508 MACRO-10 Programming
3 hrs.
A study of MACRO-10, the assembly
language of the PDP-10 computer. This
course may not be used for credit in a
Computer Science graduate program.
Prerequisites: 306 or equivalent.

510 Computer Science
Fundamentals
4 hrs.
For incoming graduate students who
have not had a course in computer
organization and a course in data
structures. Topics covered include
computer organization, data struc-
tures, structured programming
languages, problem solving and an
introduction to automata and formal
languages. The course stresses good
programming skills. Languages used will be FOR-
TRAN, PASCAL and MACRO-10. This
course may not be used towards a
Computer Science major or minor.
Prerequisites: 224 or equivalent
Concurrent or previous enrollment in
CS 506 is required.

527 Theory of Computer Graphics
3 hrs.
A first course in the design of in-
teractive computer graphics systems.
Currently available hardware and
software systems are described.
Emphasis is on theoretical con-
siderations in the design of interactive
computer graphics software systems.
Prerequisites: (MATH 230 or CS 331)
or CS 510.

542 Data Base Management
Systems (DBMS)
3 hrs.
Topics covered include searching and
access definition of DBMS, design
approaches to DBMS and features of
current DBMS. Prerequisites: 342 or
510.

554 Operating Systems
3 hrs.
Fundamentals are stressed. A
historical survey of the development
and growth of operating systems is
given to lend perspective to the ideas
that follow. Basic concepts and ter-
minality will be emphasized.
Prerequisites: (MATH 230 or CS 331)
for credit in a Computer Science
graduate program. Prerequisites: 306 or equivalent.

599 Independent Study in Computer
Science
1-3 hrs.
Advanced students with good
scholastic records may elect to pursue
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: Written approval of in-
structor.

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.

625 Computer Structures
3 hrs.
Provides the principles of design of modern digital computers. Circuit implementations of switching networks and of sequential machines are investigated. Recent computer developments such as microprocessors, disk memories, integrated circuits and microprogramming are included. Designs of various CPU circuits and memory organizations are considered. Prerequisite: 510.

631 Advanced Data Structures
3 hrs.
Stresses the representation and implementation of various data structures. The effect of data structures on program complexity is investigated. The uses of data structures in a variety of application areas are covered. Introduces complex data structures. Prerequisite: 510.

632 Analysis of Computer Algorithms
3 hrs.
Computing time and space requirements of algorithms are analyzed with emphasis given to the effect of data structure choice on program complexity. Various abstract models of computation are considered. Methods for proving program correctness and the related problems are identified. Students implement a number of algorithms on a computer and discuss aspects of the complexity and correctness of their programs. Prerequisites: 631 and 680.

643 Advanced Data Base Management Systems
3 hrs.
Topics covered include DBMS Languages, study and usage of present DBMS and data base administration. A major part of the course will be the implementation of a DBMS. Prerequisite: 542.

655 Advanced Operating Systems
3 hrs.
Advanced and current topics in operating systems research will be discussed. Analysis of competing 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: 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: 510.

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: 680.

682 Artificial Intelligence
3 hrs.
Computer intelligence, computer learning, information representation, heuristics, problem solving, pattern recognition, natural language processing, computer vision and searching techniques. Applications in chemistry, medicine, game-playing and psychology. The LISP language will be used for programming. Prerequisite: 510.

691 Seminar in Computer Science
1-3 hrs.
Open to Graduates 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
1-12 hrs.

Economics (ECON)

Professors Copps, Gardner, Ho, Junker, Kripalani, Ross, Sichel, Zelder; Associate Professor Wend; Assistant Professors Caruso, Harik, Payne, Stone, Zabor.

Open to Underclass 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.

501 Studies in Economic Problems: Variable Topics
3 hrs.
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 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 of manpower in the United States, including such topics as labor force components, contributors to productivity, profit, 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 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, and the economic implications 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 business. 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-period 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 economic and social consequences of these practices.

624 Issues in Public Finance
3 hrs.
An exploration of issues in taxation, government spending, fiscal policy, and intergovernmental relations with emphasis on recent literature in those areas. Prerequisites: ECON 201 and 202.

650 Industrial Organization and Public Policy
3 hrs.
The interest of this course centers on the areas where markets are characteristically oligopolistic. After a brief review of the different market types: the more important market structure, behavior, and performance variables and their accompanying public policy implications are dealt with.

651 Seminar in Industry Studies
2 hrs.
This course offers the graduate student who has previously studied industrial organization and public policy the opportunity to investigate the structure, behavior, and performance of a particular industry of his/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 human condition. 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, Davidson, Denenberg, Galligan, Gianacakis, R. Goldfarb, Holaday, Miller, Nelson, Sadler, H. Scott, Stroupe, Woods; Associate Professors B. Carlson, N. Carlson, Cooley, Cooney, Davis, Demetrakopoulos, Douma, Gingerich, Johnston, S. Scott, Seiler, Shafer, Small, Stallman, Syndergaard, Weaver, Assistant Professors Bailey, Cutbirth, Drzick, Dybek, Hains, Hinkel, Holloway, Schwartz, Shelnut.

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.

When they are scheduled as off-campus, interinstitutional courses by the Division of Continuing Education, courses during the semester, 500-level English courses will carry three credits.

Open to Upperclass 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
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 classical, European, British, or American writers. Limited to one or two authors. May be repeated for credit as long as the authors covered are different.

556 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 a topic in American Literary history, such as The American 'Renaissance' or the 1920's, The Transcendental Tradition in American Literature, Fiction or Poetry or Drama in America, or The Development of Modern American Prose Style. May be repeated once with the permission of the graduate adviser.

640 The Nature of Poetry
3 hrs.
A study of styles, techniques, forms, and conceptions of poetry, involving practice in explication, both oral and written of individual poems. Required for the M.A. in English.

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 Studies in the Novel
3 hrs.
An examination of significant forms and techniques employed in the novel from its beginnings to the modern age.

645 Studies in the Modern Novel
3 hrs.
An intensive study of the works of some important novelists of the twentieth century.

652 Studies in Shakespeare: Tragedy
3 hrs.
Selected tragedies of Shakespeare.

653 Studies in Shakespeare: Comedy
3 hrs.
Selected comedies of Shakespeare.

660 Research and Writing
3 hrs.
A survey of aids in research leading to completion of a writing project. Required for the M.A. in English.

661 Seminar
3 hrs.
Study of a problem in literary history or criticism. May be repeated once with the permission of the graduate adviser.

664 Essay and Article Writing
A course in the writing of informal expository prose in the forms used for addressing general audiences. There will be a generous amount of reading in exemplary works and a concern for understanding the rhetorical principles underlying good modern prose. Prerequisite: a bachelor's degree.

668 Literary Criticism
3 hrs.
Readings in several significant theorists on the nature of literature, the characteristics of audience response to literature, and principles underlying the analysis and evaluation of literature. Works in at least two genres will be examined in the light of these theoretical writings. Required 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 Eichenlaub, Heller, Horst, Kirchner, Raup, Vucich; Associate Professors Dickason, Erhart, Micklin, Quandt; Assistant Professor Hodler

Systematic Geography
Open to Upperclass and Graduate Students

521 Studies in Climatology and 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. Prerequisite: 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.
Principles and methods of climatology and meteorology topics. Present 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 agricultural systems throughout the world, focuses on selected crop-livestock systems and the changing character of agricultural land use in the United States.

b. Manufacture. Examination of theories and strategies of industrial plant location, the relationship of industrialization to regional economic growth and development, and selected industry case studies evaluating the interrelations of locational, economic, technological and political factors in the respective industry’s historic evolution.

c. Transportation. Examination of the historic evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport dilemma, and competitive and complementary characteristics of the different transport modes.

553 Water Resources Management
3 hrs.
Examination of water resources management with emphasis upon rational development and utilization of available supplies. Topics include supply and demand, methods of technological and geographical augmentation (desalination, inter-basin transfers, etc.), water administration and policies, and various water problems together with possible approaches to 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: GEOG 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. The Planning Process and the development of Comprehensive Plans as practiced in American communities. The legal foundations of zoning and subdivision regulations, and the implementation of the comprehensive plan. The organization, role, and relationship of the planning commission, the zoning board, and the planning department in the community.

b. Regional Planning. Studies in the administration and coordination of planning programs at the regional level, e.g., transportation and communications, land use and conservation, drainage systems and wastewater treatment, residential and industrial development. The evolution and current status of planning methodologies are examined with emphasis on economic and environmental tradeoffs, and on problems of implementing regionally-oriented planning 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 and Planning
2-3 hrs.
A review of the current literature and recent methodological developments in the field of urban geography and planning. Prerequisite: GEOG 556 or 570.

Regional Geography
Open to Graduate Students Only

510 Anglo America
3 hrs.
Review of the physical, cultural, and economic geography of the United States and Canada. Focus on regional problems and outlooks. Lectures, assigned readings, and periodic seminars. May not be taken for credit if student has credit for GEOG 380.

511 South America
3 hrs.
Regional study of the nations of South America with attention to the interrela-
tionships of the physical and cultural environments. Historical background necessary for the interpretation of the present political, social, and economic conditions is included. May not be taken for credit if student has credit for GEOG 381.

512 Middle America
3 hrs.
Systematic consideration of the physical environment of Mexico, Central America, and the West Indies. A problems approach is utilized to reckon with the economic, social, and political trends of the region. May not be taken for credit if student has credit for GEOG 382.

513 Western and Southern Europe
3 hrs.
Examination from western Europe from a regional perspective. The environ-
mental and historical backgrounds serve as a foundation for a more intensive study of contemporary conditions, problems, and issues. May not be taken for credit if student has previously received credit for GEOG 383.

514 U.S.S.R. and Eastern Europe
3 hrs.
Physical, cultural, and economic geography of the Soviet Union. Primary focus is on population change and agricultural-industrial development within a spatial framework. May not be taken for credit if student has credit for GEOG 384.

515 Southeast Asia
3 hrs.
Survey of the physical, cultural and economic geography of Southeast Asia. Primary focus is placed on countries of mainland Southeast Asia (from Burma to Malaysia and Vietnam), with emphasis on the spatial patterns and relationships found within particular societies and countries. May not be taken for credit if student has received credit for GEOG 389.

516 Middle East and North Africa
3 hrs.
Study of the diversity of uniformity—both physical and cultural—of the Middle East and North Africa. Special attention is given to aridity problems, economic development, petroleum, Arab re-
unification movements, and the impact of the Muslim world on the current political scene. May not be taken for credit if student has credit for GEOG 387.

517 Middle and South Africa
3 hrs.
Intensive study of the physical, economic, and political geography in Africa south of the Sahara, analysis of recent developments in selected regions and states. May not be taken for credit if student has completed for GEOG 386.

518 The Pacific Realm
3 hrs.
Analysis of the human and physical geography of the Southwest Pacific, with concentration on Australia, New Zealand and Polynesia. May not be taken for credit if student has credit for GEOG 385.

520 South Asia
3 hrs.
Survey of the physical, cultural and economic geography of the Indian subcontinental region (India, Pakistan, Bangladesh, Sri Lanka and the countries of the Himalayas). Primary focus is placed on India with emphasis upon the characteristic spatial patterns and relationships found in the region. May not be taken for credit if the student has received credit for GEOG 390.

550 Studies in Historical Geography
3 hrs.
The major approaches to historical geography are analyzed in depth. Then students concentrate on individual research topics within the region. Topic and/or period of time being examined that semester. The course focus 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 a region, e.g., Latin America, Anglo-America, Europe. Regional concent-
tration will vary from semester to semester, with the region being indicated at time of enrollment. May also be offered in conjunction with field studies to various areas, and may be repeated for credit. Prerequisite: An appropriate introductory course at either the undergraduate or graduate level.

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. The 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
3 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 background lectures, field observations, and problem solving exercises. Prerequisite: GEOG 560 or consent.

568 Quantitative Methodology
3 hrs.
Introduction to the application of quantitative concepts and methods in the analysis of geographic problems. Emphasis is placed on data base management, computer applications of common numeric and statistical methods, and utility assessment of various research designs and strategies. Prerequisite: A course in statistics or consent.

580 Advanced Cartography
3 hrs.
The compilation of data, design of maps, production techniques, and application of statistical techniques in mapping are applied to advanced cartographic methodology and photocartography. Students are assigned projects, and current trends in cartographic research, state-of-the-art production techniques, and geodetic surveying techniques are examined. 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 resource, rural and urban land use, as well as topics adapted to the interest and anticipated future work of the student.

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.
Problem formulation and research design are introduced in light of modern geographic thought and current practices. Other courses emphasize sources of geographic information, search strategies, and the written presentation of research materials. Graduate students in geography are urged to complete this course as soon as possible. Prerequisite: Consent of graduate 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 Geography
1-3 hrs.
Designed for the advanced student interested in analyzing problems related to various topics in geography. Prerequisite: Consent of instructor. May be repeated.

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)

Schmalz, Chairperson; Professor Straw: Associate Professorers Chase, Grace Passaro; Assistant Professors Harrison, Saucke.

Open to Upperclass and Graduate Students

502 Problems in Geology and Earth Science
1-3 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: GEOL 131 or consent of instructor.

520 Economic Geology
3 hrs.
Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, and mineral fuels. Three lectures a week. Prerequisite: GEOL 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: GEOL 131, 301, or 335.

532 Surficial Processes and Ground-water 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.

535 Depositional Systems
4 hrs.
Principles of sedimentation and stratigraphy including correlation, facies, stratigraphic nomenclature, sedimentary petrology, processes and environments, includes analysis of elastic and carbonate regimes in modern and ancient sediments. Laboratory involves textural analysis, sedimentary structures, paleocurrent analysis, electric logs, subsurface maps, and application of statistical and computer methods to the solution of sedimentologic problems, and basin analysis. Course includes a 3-day field trip. Three lectures and one three-hour laboratory per week. Prerequisite: GEOL 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: GEOL 131 and consent of instructor.

543 Paleoecology
3 hrs.
Study will include the ecology, life, habits, and environmental interactions of ancient organisms. Prerequisites: GEOL 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. Prerequisite: GEOL 130, 131, or consent.

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 Introduction to Geophysics
3 hrs.
Introduction to geophysical exploration methods including seismic reflection and refraction, gravity, electric, and electro magnetics. Prerequisites: PHYS 110-111 or 210-211, MATH 122, and GEOL 130.

561 Seismic Methods
3 hrs.
Refraction and reflection seismology as applied to the search for petroleum, site studies in civil engineering, and other geologic problems. Two lectures and three hour practical laboratory with field exercises and problems. Prerequisites: GEOL 560, MATH or CS 306, and MATH 123.

562 Gravity and Magnetic Methods
3 hrs.
Potential field methods as used in mining and petroleum exploration, for geologic mapping, and groundwater problems. Analytical solutions, numerical modeling, and other interpretational techniques. Prerequisites: GEOL 560, MATH or CS 506, and MATH 123.

563 Electrical Methods
3 hrs.
Resistivity sounding and profiling, induced polarization, spontaneous potential, electromagnetic methods using natural and artificial fields. Two lectures and three hour laboratory with field studies and laboratory modeling. Prerequisites: GEOL 560, MATH or CS 506, MATH 123, and PHYS 540.

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
3 hrs.
X-Ray diffraction and fluorescence techniques applied to mineralogical and petrological problems. Prerequisites: GEOL 335 or permission.

612 Hydrogeology
3 hrs.
The study of surface and ground water with special emphasis on its chemistry, movement, and relation to the geologic environment.

620 Marine Geology
3 hrs.
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
3 hrs.
The theory of 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.

634 Research in Geology and Earth Science
1-4 hrs.
A seminar designed to provide students with the opportunity to examine and discuss important problems in Earth Science. Oral presentations will be required. Prerequisite: Consent.

History (HIST)

Breisach, Charpelson, Professors

Beeler, Brown, Brunhumer, Castel, Cordier,ласассер, Gregory, Hammer, Maier, Mowen, Nahm, Nodel, Schmitt, Associate Professors Burke, Davis, Hahn, Hawks, Pattison, Assistant Professor Hannah.

United States History

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.

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. DuBois, 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 alongside 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, 1789-1848
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 his/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 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.

Open to Graduate Students Only
605 Studies in American History
3 hrs.
608 Seminar in American History
3 hrs.

Europe
Open to Upperclass and Graduate Students
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.

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 in the Western world, 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.
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.

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 theocracy, scholasticism, and mysticism. The emphasis throughout will be on topics most important for the understanding of our own values and society.

553 Life in the Middle Ages 3 hrs.
This course seeks to capture the reality of everyday life for the three main groups of lay people in medieval society—peasants, nobles, and townspeople—by studying members of each of those groups from the following viewpoints: 1. the ways in which they made a living, i.e., their work, the way it was organized, as for instance in the manor or the guild, and the methods, techniques, and equipment available to them; 2. the ways in which they spent their leisure time; 3. their standard of living as measured by their food, clothing, and other material possessions; 4. the social groups of which they were members and which gave meaning to their lives such as the family, the local community, and their social class; 5. their beliefs, values, and general outlook with special emphasis on the consequences of widespread illiteracy—the course will not discuss the culture of the educated elite such as in medieval philosophy and theology, and finally, 6. their normal life cycle from childhood to old age, looking at decisive events such as marriage, the birth of children, and death, and giving special attention to the high birth and death rates and low life expectancy, and their causes and consequence.

554 The Renaissance 3 hrs.
Between 1300 and 1517 great changes in European life were brought about by the catastrophic Black Death, the activities of merchant venturers, the coming of gunpowder and diplomacy, the state as a new form of life, new ideas about man, God, and the universe, and by the geniuses of the brilliant Italian Renaissance (Petararch, 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 Zwinger reshaped religious thought. Regional churches appeared. The Roman Catholic Church underwent a renewal. All of that was accompanied by bitter religious wars but also by early traces of the sciences, visionary social schemes, and a feverish artistic activity.

556 The Age of Enlightenment 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.

557 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 3 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.

Open to Graduate Students Only

615 Studies in European History 3 hrs.

618 Seminar in European History 3 hrs.

646 Seminar in Medieval History 3 hrs.

652 Studies in Medieval History 3 hrs.

Non-Western World

Open to Upperclass and Graduate Students

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.

571 Mexico: The Building of a Nation 3 hrs.
A review of the 19th century process toward national unity and identity, and of the 20th century era of violent revolutionary fervorism and post-revolutionary ordered development in the Latin American nation which has persisted most immediately and continuously on the conscious awareness of the United States.

581 Modern China 3 hrs.
A study of the rise of Chinese nationalism, the revolutionary movement of the Nationalists, the Kuomintang rule, the Japanese aggression in China, the rise of communism and Mao Tse-tung, the Great Leap Forward, and Cultural Revolution in Communist China.
583 Modern Japan
3 hrs.
A study of the growth of nationalism, colonialism, militarism, and imperialism in Japan, international relations of Japan, the fall, the Allied Occupation, and reconstruction. Japan's new role in the world

584 Modern Korea
3 hrs.
A study of the decline of the Yi dynasty, Korea's struggle against foreign encroachment, the era of Japanese colonial rule, the liberation of Korea, and the establishment of two Koreas.

585 Southeast Asia in the Twentieth Century
3 hrs.
Nationalism in southeast Asia and the struggle against Western colonialism, the rise of social and economic revolutions, problems of independence and modernization in the newly emerging nations of the region.

587 Ancient and Medieval Africa
3 hrs.
History of Africa from earliest times until the emergence of the slave trade as the dominant factor in African relations with the rest of the world. Examination of the question of the origin of man in Africa, the role of ancient Egypt in African civilization, the Bantu expansion, Punic and Roman Africa, the rise of Islam, the Golden Age of the Sudanic empires, and the states of the West African forest, Congo Basin, and East Africa.

Open to Graduate Students Only

625 Studies in History of Non-Western World
3 hrs.
628 Seminar in History of Non-Western World
3 hrs.

General

Open to Upperclass and Graduate Students

500 Problems in History
1-3 hrs.
Variable topics in historical studies including problems in applications, public historical awareness, local history, and historical analysis of issues in the contemporary world. Repeatable for separate credit so long as the topic varies. Consult Schedule of Classes for topics.

594 War in the Modern World
3 hrs.
Selected topics in modern war and current military developments. Topics for each semester will appear in the Schedule of Classes. The course may be repeated for separate credit as long as the topic varies.

Open to Graduate Students Only

635 Studies in Historical Problems
3 hrs.
638 Seminar in History
3 hrs.

History as a Discipline

Open to Upperclass and Graduate Students

505 Local and Regional History
3 hrs.
Studies of small areas in great detail, pursued by interested laymen as well as professional historians, frequently precede, modify or augment historical studies of wider scope. The local historian relies almost exclusively on primary sources: archives and manuscript collections, oral history, genealogy, records of local government units, and so on. This course is an introduction to the specialized techniques and sources of local history, how they may be located and exploited for a variety of research objectives.

511 Introduction to Archives
3 hrs.
Theory, techniques, and practice in the development and administration of archives and archival materials.

512 Introduction to Museum Studies
3 hrs.
A survey course dealing with the history, philosophy, organization and practice of museums. The course will examine the organization and structure of various types of museums, and will cover such topics as: collecting theory, conservation and security, care of collections, display techniques, historic preservation, registration and cataloging, and museum ethics.

513 Historic Preservation
3 hrs.
Examination of problems in developing historic sites and districts. Topics include documenting historic sites, registration procedures, preservation law, funding sources, history of the preservation movement, social issues in urban rehabilitation, public, private and citizen interaction.

590 Historical Method
3 hrs.
Designed to introduce students to and familiarize them with the tools, techniques, and principles of historical research and writing. The principal reliance is upon exercises in the application of historical method to specific problems.

690 Historical Method
3 hrs.
Designed to acquaint the student with the major historical works in his/her designated field of special interest. Required of all candidates for the Master's or Specialist degree in History. Students enrolling should consult the graduate advisor.

699 Historical Essay
4 hrs.
An analytical and interpretive study to be written under the supervision of a member of the History faculty and selected in consultation with the graduate advisor.

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.
720 Specialist Project
2-6 hrs.

Other Courses

Open to Upperclass and Graduate Students

598 Independent Reading in History
2-3 hrs.

593 Philosophy of History
2 hrs.
What do all the rulers, battles, catastrophes, cultures, glories, and defeats add up to? Is there a goal toward which all of history marches or is there no rhyme or reason to the collective human experience? Thinkers such as Thucydides, St. Augustine, Vico, Hegel, Marx, Spengler, Toynbee, and the existentialists give different answers to these questions.

599 Professional and Field Experience
Variable Credit
Upon prior approval by the Department of History students may earn credit through appropriate professional experiences such as museum internships, work in archives and manuscript collections, historic preservation advocacy, or other meaningful activities. Prerequisite: Approval of the Graduate Adviser and one appropriate course from among the following: 511 or 512 or 513.

Open to Graduate Students Only

690 Historical Method
3 hrs.

Languages, Modern and Classical (LANG)

Cole, Chairperson: Professors Edling, Osmun, Associate Professors Alvarez, Cardenas, Giedeman, Griffin, Kissel, Assistant Professors Benson, Bigelow, Felkel, Gardiner, Krawutschke, Miller, Orr, Reish, Teichert.

Language Teaching Courses

Open to Upperclass and Graduate Students

558 Modern Language Instruction (in French, German, Spanish, or other language) 3 hrs.
Required for modern language teaching majors; recommended for teaching minors. (May not be counted in the minor.) 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.

Open to Graduate Students Only

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

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.

551 Advanced French Grammar and Composition 3 hrs.
Intensive review of French structure and practice in composition. Prerequisite: FREN 316 and 317 or equivalent.

552 Advanced French Conversation 3 hrs.
Intensive practice with spoken French. Prerequisite: FREN 316 and 317 or equivalent.

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, 325, 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, fables, 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

600 French Classical Drama 3 hrs.
Drame classique. Seventeenth century French tragedy and the comedies of Moliere.

601 Voltaire and Rousseau 3 hrs.
Voltaire et Rousseau. Influential ideas of the eighteenth century expressed in the writings of Voltaire and Rousseau.

602 Contemporary French Novel 3 hrs.
Roman contemporain. Representative novels of the twentieth century.

603 French Literary Criticism 3 hrs.
Study of French literary criticism as a literary genre and as a basis of judgment.

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.

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

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.

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.

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.

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.

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.

559 History of the German Language 3 hrs.
Survey of the development. Prerequisite: Six hours of 300-level German or above.
oractices Required for Latin teaching in the elementary or secondary school
Principles, problems, and current topics 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 Elegaic—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.

TopiC in a Russian literary or linguistic area Departmental approval required for admission.

Open to Graduate Students Only

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 Novelle—Survey of the development with representative selections.

Nineteenth Century Drama—Primarily Kleist, Grillparzer, Hebbel, and Hauptmann.

Twentieth Century Drama—Representative selections.

Open to Graduate Students Only

600 Goethe
3 hrs.
Das Werk Goethes: The literary and cultural contributions of Goethe excluding Faust.

601 Faust
3 hrs.
Goethes Faust. Significant selections from parts I and II of the poem.

620 Seminar
2-4 hrs.
Ausgewählte Gegenstände aus dem Gebiete der Germanistik. Topic to be selected from a German literary or linguistic area.

640 Introduction to Middle High German
3 hrs.
Introduction to Middle High German language and literature.

Latin (LAT)
Open to Upperclass and Graduate Students

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.

557 Teaching of Latin
3 hrs.
For prospective teachers of Latin in the elementary or secondary school. Principles, problems, and current practices. Required for Latin teaching majors.

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 Elegaic—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

601 Roman Novel
3 hrs.
A study of the history and development of the Greek romance and the Roman novel. Extended readings of Petronius’s Satyricon and Apuleius’s Metamorphoses in Latin.

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, intonation, syntax, and semantics.

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.

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.

628 Seminar
3 hrs.
Topic to be selected from a Latin linguistic or literary area.

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.

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.

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:

The Poetry of Pushkin: Emphasis on the tales and Byronic narratives.


Classic Russian Short Stories: Emphasis on the works of Turgenev, Gobol, Tolstoy, and Lesков.

Modern Russian Poetry: Emphasis on Mayakovski, Akhmatova, Esenin, Yevtushenko, and Voznesenski.

Spanish (SPAN)
Open to Upperclass and Graduate Students

526 Survey of Spanish Literature to the 18th Century
3 hrs.
A survey of Spanish literature from its origin to, including, the seventeenth century. Prerequisites: SPAN 316, 317, and 325.

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.

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.
529 Survey of Spanish American Literature from Modernism to the Present
3 hrs.
A survey of Spanish American literature from late 19th century to the present. Prerequisites: SPAN 316, 317, and 325.

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.

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.

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.

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, 529, 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 '98—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
600 Golden Age Prose
3 hrs.
Study and comparison of the major prose types of the period with special attention to the picaresque novel.

602 Contemporary Spanish Novel
3 hrs.
Study of forms and trends.

603 Spanish-American Modernism
3 hrs.
Study of the rise and development of major works of the period.

606 Medieval Spanish Literature
3 hrs.
Linguistic and literary analysis from the time of <i>Cid</i> to the fifteenth century.

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.

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.

700 Master's Thesis
6 hrs.

710 Independent Research
2-6 hrs.

Linguistics (LING)

Palmater, 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
4 hrs.
Study of the application of linguistics and other disciplines to the teaching of Standard American English to speakers of other languages, with emphasis on current methods and materials for instruction and testing. Course work will include tutorial experience.

512 Principles of Teaching English as a Second Language
4 hrs.
Study of the linguistic theory and historical development of teaching English to speakers of other languages, as well as an examination of second language acquisition and the various aspects of bilingualism. Prerequisite: An introductory course in linguistics.

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., Latvian, 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.

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. Prerequisite: LING 502 or equivalent.

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.

597 Seminar in Linguistics—Variable Topics
2-4 hrs.
Each seminar will deal with a selected topic relating to language and/or linguistics. Since content will vary from semester to semester, students are advised to check course descriptions in the Department office. The Department will welcome suggestions for seminar topics from students. Prerequisite: Major or minor status or permission of instructor.
598 Readings in Linguistics
1-4 hrs.
An opportunity for advanced students with good scholastic records to pursue the independent study of a linguistic subject not specifically covered by any of the courses in the Linguistics Department. Prerequisites: 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.
Arabic
Brazilian Portuguese
Chinese (Mandarin)
Hebrew
Hindi-Urdu
Japanese
Korean
Latvian
Persian
Polish
Sanskrit
Serbo-Croatian

Open to Upperclass and Graduate Students
501 Intermediate Critical Languages I
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 II
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)
Powell, Chairperson; Professors Alavi, Chartrand, Clarke, Giosa, Goldsmith, Hsieh, Leja, lick, McCully, Petro, Stoline, White, Yang. Associate Professors Biehko, Buckley, Eeningenburg, Fialkow, Hirsch, Kapoor, Nelson, Laing, Northam, Riley, Schreiner, Sievers, Stoddart, Turner, Wright; Assistant Professors Channell, Dubien, Foster, Meyer.

Open to Upperclass and Graduate Students
506 Scientific Programming
3 hrs.
Designed to give preparation in the use of numerical methods on digital computers for scientific and engineering applications. The FORTRAN 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 374) and CS 112 or 306. (Cross-listed with CS 506.)

507 Numerical Analysis
3 hrs.
Numerical methods involving polynomial evaluation, series approximations, numerical integration, interpolation solution of linear and differential equations, linear programming, least squares and minimax approximations. Topics include: Chebyshev polynomials, Legendre polynomials, Weierstrass Theorem, Berstein polynomials, Runge-Kutta methods. Generalized Rolle's Theorem, Taylor's Theorem, Newton's method. False Position method, economization of power series, Minimax Theorem, forward differences, central differences, Simpson's rule, Boole's rule, and predictor-corrector methods. Prerequisite: MATH 272, and a programming course. (274 or 374 recommended).

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
2hrs.
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, ex-
4 hrs.  
Topics include: completely randomized, multiple comparisons; factorial orthogonal contrasts and polynomials; A course in experimental design and randomized complete block, Latin course is molded around the complete arrangement of treatments; contingency tables, goodness of fit tests, fixed effects models. Prerequisite: MATH 560 or 362.

563 Sample Survey Methods  
This course consists of a broad overview of the techniques of survey data collection and analysis and contains a minimum of theory. Topics may include: simple random, stratified, systematic, single-stage cluster, and two-stage cluster sampling; ratio and regression estimation; subpopulation analyses; problems of nonresponse; surveys of sensitive issues; minimization of survey costs; sample size determination. Real surveys are discussed and actual survey data are analyzed. Prerequisite: An introductory statistics course, and consent of instructor.

566 Nonparametric Statistical Methods  
This course presents a broad overview of statistical methods commonly referred to as nonparametric or distribution-free methods. Topics include: inferences for proportions, contingency tables, goodness of fit problems, estimation and hypothesis testing based on ranked methods, measures of rank correlation, efficiency. Emphasis will be on the application of nonparametric statistical methods to data from many different applied fields. Prerequisite: An introductory statistics course.

567 Statistical Design and Analysis of Experiments  
4 hrs.  
A course in experimental design and the analysis of variance with particular emphasis on industrial experiments. Topics include: completely randomized, randomized complete block, Latin square, and split-plot designs; orthogonal contrasts and polynomials; multiple comparisons; factorial arrangement of treatments; confounding; fractional replication. This course is modeled around the complete analysis of good applied problems. Prerequisite: An introductory statistics course.

568 Regression Analysis  
3 hrs.  
An applied course in regression analysis: simple and multiple linear regression, resolution of fit of a model, including residual analysis, precision of estimation, and tests of general hypotheses; model building; step-wise regression, use of indicator variables; non-linear regression. Prerequisite: An introductory statistics course.

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, 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.
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, axioms, logical structure of elementary algebra, mathematical induction, integers, rational and real numbers, cardinal numbers. 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 adviser.

614 Mathematical Logic
4 hrs.
This course will include the following topics: sentential connectives, theory of inference, symbolizing language, quantifiers, formal and informal proofs. Prerequisite: Consent of adviser.

615 Intermediate Analysis
4 hrs.
This course will include the following topics: limits, continuity, differentiation, integration, applications. It will stress concepts rather than techniques. Prerequisite: Consent of adviser.

616 Survey of Algebra
4 hrs.
This course will discuss groups, rings, integral domains and fields, including such topics as homomorphisms and isomorphisms, subalgebras and ideals, with examples involving permutation groups, transformation groups, polynomial rings and finite fields. In addition there will be a discussion of basic linear algebra, including linear spaces, linear transformations, matrices, applications to geometry and systems of equations. Prerequisite: MATH 610 or equivalent.

619 Numerical Methods
4 hrs.
This course will include the following topics: automatic programming systems for digital computers, matrices, inequalities, areas, other selections from numerical analysis. The participants will actually use the computer. Prerequisite: Consent of adviser.

620 General Topology
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. Ideal, vanishing, 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 Problem. Prerequisite: Approval of adviser.

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 PEMS. 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. Prerequisite: Approval of instructor.

649 Studies in Geometry
3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

The courses 650, 652, and 654 are primarily for teachers and ordinarily will not apply towards the Master of Arts degree in Mathematics.

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.

660 Statistical Inference I 4 hrs.
A first course in mathematical statistics. Topics include: distributions of statistics, asymptotic distribution theory, theories of estimation, functions of sufficient statistics; confidence intervals; theories of testing, uniformly most powerful tests; likelihood ratio tests; selected topics in statistics. Prerequisites: MATH 562.

661 Multivariate Statistical Analysis 3 hrs.
A treatment of multivariate statistical problems and techniques. Topics include: multivariate normal distribution, quadratic forms, multiple and partial correlation, sample correlation coefficients; Hotelling's T²-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.

662 Applied Linear Models 3 hrs.
An advanced course in applied statistics. Linear models will be used to treat a wide range of regression and analysis of variance methods. Topics include: matrix review, multiple, curvilinear, nonlinear, and stepwise regression; correlation; residual analysis; model building; use of the regression computer packages at WMU; use of indicator variables for analysis of variance and covariance models. Prerequisite: MATH 562.

663 Linear Models 3 hrs.
A theoretical study of the general linear model including random vectors, quadratic forms, multivariate normal distributions, least squares estimation, hypothesis testing for full and reduced models, generalized inverses. Prerequisites: MATH 660 and 662 and 510.

664 Design of Experiments I 3 hrs.
An applied course in the design and analysis of experiments. Topics include: general considerations in the design of an experiment; standard designs such as Latin square, balanced incomplete block, split plot, and nested; pooling of experiments; multiple comparison techniques; orthogonal contrasts and polynomials; factorial arrangement of treatments; fixed, random, and mixed models; confounded designs; fractional replication. Prerequisite: MATH 662.

665 Statistical Inference II 3 hrs.
Mathematical statistics is considered in a decision theoretic framework. The decision problem, loss and risk functions, Bayes procedures, minimax procedures, admissibility, complete classes; sufficiency, hypothesis testing and estimation. Prerequisite: MATH 662.

666 Nonparametric Statistical Theory 3 hrs.
A theoretical study of nonparametric statistics and robust statistical procedures. Topics may include: order statistics, empirical cdfs, M-estimates, rank statistics, optimality considerations, asymptotic distribution theory. Prerequisite: MATH 571 and 660.

667 Introduction to Random Processes 3 hrs.
This course is a treatment of random sequences and Markov processes. Discrete and continuous Markov processes; transition and rate matrices; Chapman-Kolmogorov systems; transient and limiting behavior; examples and illustrations; random walks, birth-and-death processes, etc. 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.

670 Measure and Integration 3 hrs.
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.

671 Introduction to Functional Analysis 3 hrs.
Metric spaces; category, compactness; Banach spaces; Hahn-Banach theorem; completely continuous operators; Hilbert spaces; self-adjoint operators; elementary spectral theory. Prerequisite: MATH 670.

672 Functional Analysis 3 hrs.
A continuation of MATH 671 to include such topics as linear topological spaces, locally convex spaces and Banach algebras. Prerequisite: MATH 671.

673 Real Analysis 3 hrs.
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.

674 Theory of Ordinary Differential Equations 3 hrs.
Systems of equations: existence and uniqueness of solutions; analyticity with respect to parameters and initial conditions; linear differential equations, isolated singularities, asymptotic solutions at infinity; stability. Prerequisites: MATH 530, 574 (576 or 676 recommended).

676 Complex Analysis I 3 hrs.
Topics include: Cauchy Theory, series expansion, power series, types of singularities, calculus of residues.

677 Complex Analysis II 3 hrs.
A continuation of MATH 676. Prerequisite: MATH 676.

679 Studies in Analysis 3 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

684 Geometry of Numbers 3 hrs.
Theorems of Hermite on quadratic forms; Minkowski's Fundamental Theorems and consequences, lattices, critical determinants, successive minima, theorems of Mather and Blaschke, packing and covering. Prerequisite: MATH 230 or permission of instructor.

686 Theory of Arithmetic Functions 3 hrs.
Convolutions of arithmetic functions, unique factorization in rings of functions under various convolutions, invertibility of functions. Divisor and quotient functions, average and maximal orders of arithmetical functions, the Dirichlet divisor problem and related problems. Prerequisite: MATH 580 or permission of instructor.

687 Additive Number Theory 3 hrs.
Topics selected from: addition of sequences of integers, density relationships, sequences with no three terms in arithmetic progression, sequences and sets of multiples, partitions, Waring's problem, sieve methods.
The Medieval Institute of Western Michigan University offers an interdisciplinary course of studies in medieval arts. This flexible course of studies provides 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), Guntram G. Bischoff (Religion)*, Joan A. Boucher (Music), Ernst A. Breisach (History)*, Norman E. Carlson (English), Nancy Cutbirth (English)*, Audrey Davidson (General Studies)*, Clifford Davidson (English)*, Ronald W. Davis (History), Elizabeth H. Duli (Art), Benjamin Ebling (French), David Edie (Religion)*, E. Rozanne Elder (History)*, Robert W. Feikei (Spanish)*, Stephanie Demetriakopoulos (English)*, Daniel Fieschacker (Theatre), Jeffrey B. Gardiner (German), C. J. Gianakaris (English)*, Elizabeth Giedeman (Latin)*, Otto Grundler (Religion)*, Paul Miller (French), Robert P. Johnston (Art), Johannes A. Kessel (German)*, Charles E. Meyer (Art), Genevieve Orr (French), George F. Osmun (Classics), Robert A. Palmatier (Linguistics)*, William A. Ritchie (Political Science), Thomas Seiler (English)*, Charles A. Smith (English), John R. Sommerfeldt (History)*, John H. Stroupe (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 J. Clark (Honors College), Roger L. Cole (German), William W. Combs (English), D. P. S. Dwarkesh (Linguistics), Robert R. Fink (Music), Jack J. Frey (Music), Maryellen Hains (English), Louis Kirkaldy (Library), Peter W. Krawutschke (German)*, Paul L. Maier (History), Edwin E. Meader (Geography), Ralph N. Miller (English), Paul T. Mountjoy (Psychology), Emanuel Nodel (History), Maise K. Pearson (English), David A. Sheldon (Music), Rudolf J. Siebert (Religion), Thomas E. Small (English), William C. VanDeventer (Biology), Joseph T. Work (Music).

Medieval Institute
Open to Upperclass 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—Please refer to The Graduate College section for course descriptions.

712 Professional Field Experience
2-12 hrs.

720 Specialist Project
2-6 hrs.

730 Doctoral Dissertation
15 hrs.

735 Graduate Research
2-10 hrs.

Medieval Studies (MDVL)
Otto Grundler, Director

The Medieval Institute of Western Michigan University offers an interdisciplinary program leading to the Master of Arts degree in Medieval Studies. The program provides preparation in medieval and Renaissance history, languages, literatures, philosophy, religion, and the arts. This flexible course of studies presents, in one year, opportunities for broad preparation in medieval studies as background for intensive work on the doctoral level. Western Michigan University offers an academic environment appropriate for the study of the Middle Ages. The University is the host institution for the annual Conference on Medieval Studies, and the Medieval Institute publishes a periodical, Studies in Medieval Culture, 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), Guntram G. Bischoff (Religion)*, Joan A. Boucher (Music), Ernst A. Breisach (History)*, Norman E. Carlson (English), Nancy Cutbirth (English)*, Audrey Davidson (General Studies)*, Clifford Davidson (English)*, Ronald W. Davis (History), Elizabeth H. Duli (Art), Benjamin Ebling (French), David Edie (Religion)*, E. Rozanne Elder (History)*, Robert W. Feikei (Spanish)*, Stephanie Demetriakopoulos (English)*, Daniel Fieschacker (Theatre), Jeffrey B. Gardiner (German), C. J. Gianakaris (English)*, Elizabeth Giedeman (Latin)*, Otto Grundler (Religion)*, Paul Miller (French), Robert P. Johnston (Art), Johannes A. Kessel (German)*, Charles E. Meyer (Art), Genevieve Orr (French), George F. Osmun (Classics), Robert A. Palmatier (Linguistics)*, William A. Ritchie (Political Science), Thomas Seiler (English)*, Charles A. Smith (English), John R. Sommerfeldt (History)*, John H. Stroupe (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 J. Clark (Honors College), Roger L. Cole (German), William W. Combs (English), D. P. S. Dwarkesh (Linguistics), Robert R. Fink (Music), Jack J. Frey (Music), Maryellen Hains (English), Louis Kirkaldy (Library), Peter W. Krawutschke (German)*, Paul L. Maier (History), Edwin E. Meader (Geography), Ralph N. Miller (English), Paul T. Mountjoy (Psychology), Emanuel Nodel (History), Maise K. Pearson (English), David A. Sheldon (Music), Rudolf J. Siebert (Religion), Thomas E. Small (English), William C. VanDeventer (Biology), Joseph T. Work (Music).

Medieval Institute
Open to Upperclass 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—Please refer to The Graduate College section for course descriptions.

700 Master’s Thesis
6 hrs.

710 Independent Research
2-6 hrs.

520 Independent Study
2-3 hrs.

583 History of Medieval Art
3 hrs.

585 History of Renaissance Art
3 hrs.

620 Independent Study
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
<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Music</td>
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<tr>
<td>517 Collegium Musicum</td>
<td>1 hr</td>
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<tr>
<td>582 Western Music before 1600</td>
<td>3 hrs</td>
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<tr>
<td>590 Readings in Music</td>
<td>1-4 hrs</td>
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<tr>
<td>670 Seminar in Musicology</td>
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<td>671 Seminar in Musicology</td>
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<tr>
<td>Philosophy</td>
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<tr>
<td>500 Ancient and Medieval Philosophy</td>
<td>4 hrs</td>
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<td>598 Readings in Philosophy</td>
<td>1-4 hrs</td>
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<td>Political Science</td>
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<td>598 Studies in Political Science</td>
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<tr>
<td>Religion</td>
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<tr>
<td>500 Historical Studies in Religion: Christian Theology to 1500</td>
<td>4 hrs</td>
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<tr>
<td>500 Historical Studies in Religion: Renaissance and Reformation Theory</td>
<td>4 hrs</td>
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<td>510 Morphological and Phenomenological Studies in Religion</td>
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<tr>
<td>Millennium, Utopia, and Revolution</td>
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<tr>
<td>598 Readings in Religion</td>
<td>1-4 hrs</td>
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**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 Friedemann Hall.

**Open to Upperclass and Graduate Students**

500 Ancient and Medieval Philosophy

4 hrs.

A study of the history of selected philosophical topics up to the sixteenth century. Great thinkers, such as Plato, Aristotle, Augustine, and Aquinas will be emphasized.

520 Mathematical Logic

3 hrs.

Basic ideas in modern mathematical logic; fundamentals of propositional and quantification calculus; basic features of formal languages and axiomatic theories; topics in metamathematics, e.g., the deduction theorem, consistency and completeness, and incompleteness. Prerequisites: MATH 310 or MATH 314 or permission of instructor.

534 Moral and Philosophical Foundations of Health Care

4 hrs.

In this course philosophical reflection and biological science are combined in a critical examination of the nature and purpose of the health sciences. Topics to be considered include: the aims of the health sciences; the interplay of fact and value in health care; competing images of humankind embedded in health science; patient autonomy, dignity, and medical paternalism. This is a cross-college interdisciplinary course which is team taught with faculty from the General Studies Science area. (Cross-listed with GSSC 534.)

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, Zielow. Associate Professors Dotson, Kaul.

**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. Prerequisites: PHYS 212 or consent of instructor, and MATH 274.

541 Electricity and Magnetism II

3 hrs.

This course is a continuation of 540 and an elective for majors wishing advanced work in field theory. Maxwell's Equations and their applications to topics such as time-dependent fields, wave guides, and radiation will form the principal topics of the course. Prerequisite: PHYS 540.

552 Applied Spectroscopy

3 hrs.

This is a combined class and laboratory course on methods of emission spectrographic analysis. The topics studied include the history of
spectroscopy, the origin of line spectra, spectrographic instruments, and modern techniques of qualitative and quantitative analysis.

Prerequisites: PHYS 111 or 211, or consent of instructor.

560 Modern Physics I
3 hrs.
This course includes an introduction to quantum mechanics with selected applications, including one-dimensional potentials, the harmonic oscillator, one-electron atom, 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 diffraction, 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 seminar may be devoted to studying a problem in depth. The course consists of two or 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 a required 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 Schroedinger-Heisenberg equations as well as through the formal operator theory of Dirac. The simple and representative systems of the simple harmonic oscillator and the one-electron atom will be discussed. The course will be confined almost solely to the non-relativistic approximation. This course and 626 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.
Lagrange's equations are developed early in the course and are used in the analysis of both point-mass and rigid-body problems. The modifications of classical mechanics required by the theory of relativity are reviewed. The Hamilton equations of motion and Hamilton-Jacobi theory are introduced, and some of the analogies between classical and quantum mechanics are discussed. 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.

664 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)

Plano, Chairperson: Professors Clark, Kaufman, Kim, Klein, McAnaw, Olton, Phillips, Ziring; Associate Professors Chandler, Dahlberg, Isaak, Kobrak, Lewis, Milstein, Renstrom, Ritchie, Rogers, Rossi, Thompson, Willis; Assistant Professors S. Hannah, Houghton, Loss.

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 of issues and problems of current interest in the field of public administration. The course is intended to provide advanced work for undergraduates and to serve as an introduction to the field for graduate students without previous training in public administration.

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: 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?

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 Asian communism. Emphasis is on the development of Chinese communism, though North Korean, North Vietnamese, and Communist movements in other Asian countries are included. The course covers ideology, revolutionary tactics, strategies, and prospects. Organized as a pro-seminar.

549 Problems of Foreign Political Systems 3-4 hrs.
Course will consider selected problems of the governments and political systems of Western and Eastern Europe, Asia, Africa, and Latin America. The specific problems, topics, and countries to be studied will be announced each semester. May be repeated.

Open to Graduate Students Only

640 Seminar: Foreign Political Systems 3 hrs.
Study and research on major topics dealing with the political systems of selected countries. Independent research and seminar presentations for each student are stressed. The country to be studied may be located in Europe, Asia, Africa, or Latin America, and will be announced each semester. May be repeated.

642 Seminar: Cross-National Political Analysis 3 hrs.
Study and research on major topics of comparative interest. Independent research and seminar presentations for each student are stressed. The topic to be studied will be announced each semester. May be repeated. Prerequisite: Any course in PSCI 340 or 540 series or equivalent.

644 Seminar: Political Modernization 3 hrs.
Focusing on the developing areas and using an interdisciplinary approach, the process of political modernization is examined in selected countries or 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.

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 Charter; 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, Congress and foreign policy, the role of the military, the United Nations and American foreign policy, and changing American attitudes on the objectives of foreign policy.

Open to Graduate Students Only

650 Seminar: International Relations 3 hrs.
Study and research on a common topic of current international political, organizational, or legal significance. Individual papers and reports will be presented. May be repeated.
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, Michels, Pareto, and Ostrogorski. Second, an analysis of the attempts of contemporary economists, political scientists, and sociologists to meet these criticisms by revising democratic theory.

563 Theories of Revolution
4 hrs.
Examines significant classical and contemporary theories of revolution with reference to both their analytical and normative implications.

564 Political Inquiry and Analysis
4 hrs.
Analysis of the application of scientific methods to the study of political phenomena: problems of concept formation, law, cause and explanation; theory construction; the place of values in political inquiry.

590 Research Methods
3 hrs.
Study of the formulation of research questions, the design of research, the methods of data collection, and the procedures for analyzing data concerning political institutions and behavior.

591 Statistics for Political Scientists
3 hrs.
An introduction to statistical reasoning with particular reference to research on political institutions and behavior. This course will emphasize bivariate statistics, but will include a brief introduction to multivariate analysis. No mathematical prerequisite is required.

Open to Graduate Students Only

660 Seminar: Political Thought
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.

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, Farris, Gault, Kent, Konarakos, R. W. Malott, Michael, Mountjoy, Robertson, Snapper, Associate Professors Brethower, Hultema, Nangle, Assistant Professors Alessi, Fuqua, Iwata, Long, M. K. Malott, Peterson, Petty, Poche, Poling.

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 361.

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 and 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 literature in several areas of animal behavior. Particular emphasis will be placed on species—typical behaviors and their ecological significance, and forms of learning which are not easily explained by simple operant and respondent models.

516 Conditioning and Learning
3 hrs.
A study of the various approaches to response measurement, experimental methodology, and theoretical interpretations of data in the area of conditioning and learning. Lecture and laboratory.

517 Psychology of Learning for Teachers
3 hrs.
Designed to teach the principles of behavior and the application of these principles to teaching. Topic areas covered include the use of behavioral principles in the development of objectives, selection and preparation of instructional material, classroom management and incentive motivation, behavior change, performance contracting and program evaluation. Practical application is stressed.
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: Twelve 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 psychology, education, or permission of instructor. Prerequisite: PSY 517 or concurrent enrollment.

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 these 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.

526 Human Drug Use and Abuse
3 hrs.
This course will provide a general overview of basic pharmacological principles, discuss the behavioral physiological mechanisms of action of several classes of medicinal and recreational drugs, and survey the factors thought to contribute to responsible and irresponsible drug intake. Although human drug use and abuse will be the primary focus of the course, nonhuman research findings will be emphasized where appropriate.

528 Generalization, Discrimination, and Concept Formation in Humans.
3 hrs.
Basic theoretical interpretations, methodological issues and data analysis in the stimulus control of behavior will be reviewed and analyzed with an emphasis on the potential and actual applications to human behavior.

530 Statistics for Education
3 hrs.
An introduction to basic statistical procedures and concepts. Topics include: measures of central tendency and variability, frequency distributions and graphic presentations, the normal curve, probability theory and the binomial, hypothesis testing, the t-test, chi square, and correlation.

535 Instrumentation in Psychology
3 hrs.
A survey of problems in response measurement in experimentation. Lecture and laboratory. May be repeated for credit.

540 Industrial Psychology
3 hrs.
An 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 human capacities. Prerequisite: Permission of instructor. (Cross-listed with IEGM 542.)

560 Behavioral Medicine
3 hrs.
Application of behavioral technology to medical patients with emphasis on inpatient treatment. Sample topics include biofeedback, pain control, compliance with medical regimen, and issues in working in a medical setting.

562 Management of Health Related Behaviors
3 hrs.
A behavior analysis approach to the management of behaviors directly and indirectly impacting health. Emphasis will be placed on outpatient, public health applications and preventive approaches to health maintenance.

570 Mental Retardation
3 hrs.
An overview of traditional and behavioral approaches to mental retardation. Topics to be considered include the historical development of the scientific study of mental retardation, the etiology and diagnosis of various forms of retardation, legal and ethical issues in working with the mentally retarded, and behavioral and traditional strategies for dealing with the problems characteristic of this population.

572 Applied Behavior Analysis: A Systems Approach
3 hrs.
The application of systems analysis concepts to the design of systems which yield behavioral measures of complex social situations.

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 psychology are examined. Approximately equal emphasis is placed upon theoretical and applied aspects of the evolution of the modern science. The origins and development of current behavioral approaches constitutes a major focus.

597 Topical Studies in Psychology
1-4 hrs.
A survey and discussion of selected research topics of current interest. Topics may include both basic science and applied aspects of the discipline. Permission 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, Behavioral Medicine, Theory of Direct Instruction,

598 Special Projects in Psychology
1-4 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, grantmanship, 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 Experimental 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 Experimental 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.

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.

618 Experimental Psychology of Perception 3 hrs.
An examination of the current facts and theories of sensation and perception.

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 and 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 experimental design. Prerequisite: PSY 530 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 human resources 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 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 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 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. Recommended for beginning graduate students.

661 Behavior Change: Individual
3 hrs.
Therapeutic problem-solving interventions applied on an individual client basis. Prerequisite: Permission of Instructor.

662 Behavior Change: Groups
3 hrs.
The practice of the behavioral and experiential techniques of behavior change applied on a group basis.

663 Behavior Change: Marital Therapy Methods
3 hrs.
Practice in the techniques of behavior change interventions applied to problems of couples. Prerequisite: Permission of Instructor.

666 Behavior Change: Family 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: 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 Consultation
3 hrs.
The course is intended to develop proficiencies in the assessment of behavior problems, using self-report measures, behavioral interviewing, direct observation techniques, and physical recording. Reliability and validity issues with respect to each assessment tool are covered. Behavioral consultation, an efficient alternative to one-to-one counseling in which therapist contact is primarily with the mediator rather than the client, is introduced. Students complete a lab project, using assessment and consultation techniques learned in the course. Prerequisite: PSY 601, 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.

679 Radical Behaviorism
3 hrs.
This course is intended to provide training in the theoretical analysis of various psychological events which include both behavioral and mental references. The course includes an indepth analysis of the theoretical basis of the philosophic position identified as "radical behaviorism" as constructed with other theoretical positions in Psychology. Prerequisite: nine graduate hours in Psychology.

681 Personality Measures
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 questionnaire, and ob servational 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 basis 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 stand-

ardized 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, ITPA, 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, ITPA, 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 682.

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.
Religion (REL)

Larsen, Chairperson; Professors Baschat, Earhart, N. Falk, Grindel, Locke, Siebert, Associate Professor Kaufman, Assistant Professor Eddleman

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 semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: 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 semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Millenium; Utopia; and Revolution; Femininity as a Religious Form; Great Islamic Thinkers; the Hindu Yogas; the Occult Tradition.

520 Methodological Studies in Religion 2-4 hrs.

The topic to 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 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 semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: 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—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, Hoikebeer, 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, cosmology, and cosmological theories. Prerequisites: PHYS 106, or 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 must be 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, 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.
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.

606 Colloquium in International and 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.

510 Studies in Social Problems: Variable Topics
3 hrs.
An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 600, 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.

520 Studies in Social Psychology: Variable Topics
3 hrs.
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 220.

521 Childhood Socialization
3 hrs.
An examination of the development of individual knowledge and abilities during childhood as acquired through

Sociology (SOC)


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 the course. Prerequisite: SOC 200 or 600, or consent of instructor.

510 Studies in Social Problems: Variable Topics
3 hrs.
An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 or 600, 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.

520 Studies in Social Psychology: Variable Topics
3 hrs.
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 220.

521 Childhood Socialization
3 hrs.
An examination of the development of individual knowledge and abilities during childhood as acquired through
sociological theories of learning and 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.

522 Adult Socialization 3 hrs.
An examination of the processes of social learning and personality development from adolescence through middle age. The course will focus on the selection and performance of adult roles, continuities and discontinuities in role learning across the life span and adaptation to social events as these affect the development and change of adult personalities. Prerequisite: SOC 320 or 521 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 metropolization, urbanization, 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 differential power. 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 operates 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 for correctional behavior modifications are studied in relation to a typology of normative deviancy 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.

567 Corporate and White-Collar Crime 3 hrs.
An intensive analysis of corporate and white-collar crime from a sociological perspective. Topics covered include: the problems involved in defining corporate and white-collar crime, an assessment of the costs of these crimes, a description of the nature, extent, and distribution of these forms of criminal behavior, the etiology of
corporate and white-collar crimes, and societal and legal reactions to these types of crime. 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 581.
central issues raised in their works. Theories will be examined with respect to both historical context and their influence on contemporary sociology.

603 Contemporary Sociological Theory
3 hrs.
An intensive and critical study of contemporary perspectives and theories in sociology. Theories which exemplify functionalist, conflict, and interpretive approaches will be examined. The course will examine the logical structure of contemporary theories and the relevance of contemporary perspectives and theories to major substantive areas in sociology.

605 Studies in Sociological Theory: Variable Topics
3 hrs.
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.

616 Studies in Social Problems: Designated Topics
3 hrs.
A detailed study of a social problem area through study 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 Etiologies 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 disconfirm 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 ongoing debate concerning theoretical and methodological problems in the study of fertility, mortality, and migration processes. The course evaluates the relationship between population processes and modernization, as well as focusing on problem and policy debates 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 relationship of organizations to their social environment. Examples of organizations will be selected from different areas such as education, government, medicine, science, leisure, and industry. Prerequisite: SOC 200 or 600, or consent of instructor.

674 Seminar in Political Sociology 3 hrs.
In-depth 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 factor analysis, advanced non-parametric techniques, path coefficient analysis, and regression analysis. May be repeated for credit with a different topic. Prerequisite: SOC 681 or equivalent.

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 uni-dimensional and multi-dimensional 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 non-parametric 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 800, 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
Ronald C. DeYoung, Assistant Dean

Graduate Offerings
Accountancy
Business Education and Administrative Services
General Business—Finance—Law
Management
Marketing
Accountancy (ACTY)

Weike, Chairperson; Professors Burke, Everett, Neubig, Newell, Wetnight; Associate Professors Daniels, Morris Schaeberle, Sheppard; Assistant Professors Dykhorn, Hines, Hodges, Laudenamer, Sinning.

Open to Upperclass and Graduate Students

513 Accounting Information Systems
3 hrs.
A study of concepts, organizations, 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.

514 Institutional Accounting
3 hrs.
A comprehensive study of the recording of transactions by government units and the preparation of financial statements by fund entities. City government is the basic unit of study; however, school districts, universities, and hospitals are given brief coverage to illustrate the similarity in accounting for all not-for-profit entities. Prerequisite: 211 or consent of instructor.

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—Concepts 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 Financial 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: ACTY 608 or consent of instructor.

617 Seminar in Advanced Auditing and Systems Concepts
3 hrs.
An advanced course which integrates auditing and systems concepts. Intensive examination of audit tools, audit theory and practice, management of the accounting information systems and EDP applications. Prerequisites: ACTY 607, ACTY 513, ACTY 516 or consent of instructor.

622 Seminar in Management 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 522 or equivalent.

624 Seminar in 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.
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 paperwork 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 a 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.

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.

684 Tests and Measurements in Business Education
3 hrs.
A study of evaluation techniques in business education, including the selection and use of published tests, and the interpretation of the results of testing through statistical procedures.

685 Research in Business Education
3 hrs.
An examination and analysis of research in business education with
emphasizes 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

Open to Upperclass and Graduate Students

519 Security Analysis
3 hrs.
An analysis of stocks and bonds. Prerequisite: BUS 326

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: BUS 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: BUS 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: BUS 330 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: BUS 322.

527 Risk Management and Insurance
3 hrs.
Insurance and self insurance. The management of risk for a company. Prerequisite: BUS 321 or consent of instructor.

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: BUS 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: BUS 320 or equivalent.

610 Financial Aspects of Higher Education
2-4 hrs.
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: BUS 325 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 BUS 326 or its equivalent. Prerequisite: BUS 320 or equivalent.

622 Contemporary Financial Problems
3 hrs.
A study of current financial management problem areas (e.g. merger, acquisitions, divestments, liquidations). Prerequisite: BUS 320 or equivalent.

624 Applied Financial Management
3 hrs.
An analytical approach to problems facing the financial executive. Cases selected cover short- and long-term financial decision-making processes with particular emphasis on statement analysis and working capital management. Other problems will emphasize capital investment decision, valuation, and cost of capital, risk analysis, capital structure, and dividend policies. Prerequisite: BUS 608.

626 Insurance and Government
3 hrs.
This course covers the historical development, legal background, and methods of governmental supervision of the insurance industry. Principal emphasis will be placed upon state supervision of insurance, but the role of the federal government in present and future regulation is also considered. Prerequisite: Consent of instructor.

Law Area
Morrison, Chairperson Associate Professors Bliss, Gossman, McCarty Assistant Professors Batch, 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: BUS 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: BUS 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: BUS 340.

544 Law of Business Organizations
3 hrs.
Study of business organizations including partnerships and corporations. Prerequisite: BUS 340.

547 Government Regulation of Business
3 hrs.
Examine the laws, rules and regulations on the federal, state, and local level which affect most business enterprises. Substantive laws affecting the firm's obligation to employees, stockholders and the general public are examined as are procedural laws affecting the regulation of the firm by public institutions. Prerequisite: BUS 340.

596 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: BUS 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 which today's colleges and universities must deal with. Prerequisite: Adviser's Consent.

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: BUS 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 Bookor, Carey, Hill, Keenan, Rizzo, Smith, Upjohn; Associate Professors Hill, Tessin, Wallace, Assistant Professors Beam, Carey, Mendenhall, Plansek, Ramsey, Tong, Woodhouse, Zelinger.

Open to Upperclass and Graduate Students

500 Management Literature
1-4 hrs.
Studies in specialized areas of the management literature. The students will prepare an original paper on an assigned topic. Prerequisite: Permission of instructor.

510 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.

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 nonparametrics tests. Prerequisite: MGMT 200.

561 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.

563 Operations Management
3 hrs.
Economic and socio-technical characteristics of the major types of production systems. Managerial aspects of workplace and facility design. Simple models for controlling operations in purposeful organizations. Prerequisites: MGMT 200 and 300 or equivalents.

564 Simulation
3 hrs.
A systematic study and application of the methodology of system simulation including system identification and
description, model development, computer implementation, experimental design and validation. Special attention is given to model classification, especially deterministic vs. probabalistic and discrete vs. continuous, and how it relates to computer implementation and fields of application. Prerequisites: Management 102 or 602 and Management 200 or permission of instructor.

565 Inventory Management
3 hrs.
The practical application of modern management techniques in the definition and solving of problems in inventory systems. Prerequisites: MGMT 200 and 561.

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.

602 Computer Usage and Information Processing
3 hrs.
An introduction to computer assisted problem solving through programming in the BASIC language. Each student is required to write and test several programs. Also, a survey of applications of information processing and some of the economic and social implications.

604 Management Analysis and Practice
3 hrs.
A survey of the use of management theories and behavioral science knowledge to analyze human problems in management and to assist in designing and operating organizations more effectively. The course treats planning, organizing, directing and controlling, as well as motivation, leadership, individual and group behavior, decision making and change strategies. Values, as they relate to the managerial process, will be considered.

630 Systems Design and Evaluation
3 hrs.
A survey of systems analysis and the various techniques to select 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.

641 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. Date classification, collection, recording, and transformation techniques are related to the use of information for making judgments and decisions.

642 Statistical Interpretation
3 hrs.
A survey of the advanced statistical techniques as applied to business problems. Includes probability theory, estimation of proportion, means and variances, test of hypothesis, simple and multiple regressions. Also includes topics selected from the following fields: sequential analysis, non-parametric methods, elements of experimental design, analysis of variance and introduction to statistical decision theory. Prerequisite: MGMT 200.

651 Analysis of Administrative Behavior
3 hrs.
Analysis of the contributions of management theory and of the behavioral sciences to modern administrative practices, group and individual behavior as related to and affected by the administrative process, lectures, cases, conferences. Not open to students having received credit for MGMT 451.

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.
Theories, models, and applications relevant to the structure of complex organizations and their subunits. Emphasis on alternative designs, their causes and consequences.

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.

695 Advanced Management Practices
3 hrs.
Independent study of current trends and advanced problems in the organization and management of complex organizations. Prerequisite: Permission of instructor. May be repeated for credit.

699 Policy Formulation and Administration
3 hrs.
This course focuses on the job of the general manager in formulating short and long run strategy. Using cases drawn from actual situations, the course develops ways of (1) perceiving specific opportunities from an analysis of evolving environmental trends; (2) understanding company strengths and (3) integrating strengths and opportunities in setting strategy and detailed operating plans. This is an integrative capstone course in that the tools and skills learned in other core courses are needed to develop practical, company-wide general management decisions. Prerequisites: Completion of MBA core courses.

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, Chairperson, Professor
Ottenso, Associate Professors
Bowditch, Crow, Delene, Lindquist, Powell, Varble, Assistant Professors
Belenius, Brogowiez, Cannon, Long, Luciman, Quareshi

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.

571 Services and Non-Profit Marketing
3 hrs.
An analysis of problems and issues relating to the marketing of services and the use of marketing in nonprofit organizations. Emphasis in these two divergent areas will be given to application of marketing concepts, methods, policies, and strategies.
special emphasis on environmental interactions. Prerequisite: MKTG 370 or Permission of instructor.

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. Communication 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 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

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 Beiz, Carlson, Griffeth, Hopkins, Oswald, Mazer; Associate Professors Belson, Bullmer, Geisler, Lamper, Richardson, Ubick, Assistant Professors Stern, Vass.

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 and personnel workers into the world of work. Areas of occupational, educational, personal, and social information are studied. Vocational development theories are investigated and their application to processes of guidance and counseling are discussed. Open to all students, but is not intended for counseling majors.

583 Guidance Workshop 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.

598 Readings in Counseling and Personnel 1-4 hrs.
Advanced students with a 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 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 underlying 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 617.

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.
The 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 reading, 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 or 609 or 611 or 612; C-P 615, C-P 617, C-P 618, C-P 619; credit for C-P 600 and completion of the departmental personal counseling requirement; six credit hours in cognate area. 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. C-P 628 normally should be taken concurrently with C-P 629.

630 Studies in Higher Education
2-6 hrs.
Designed for career people in the fields of Administration and Student Personnel Services of Higher Education. The workshop approach will be used to introduce students to such areas as Admissions, Registration, Staff Personnel, Administrative Organization, Financial Aids, Societal and Economic Student Population Levels, Foreign Student Programs, and other areas of Higher Education.

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 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, 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 psychodynamic theory and conceptualization of personality development and functioning from birth to death as expressed by Freud, E. H. Erikson, Kubler-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 theoretical 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. Depression: Dynamics and Treatment
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 theory advanced study
h. Development of personal theoretical positions

690 Practicum in Counseling and Psychotherapy Supervision I 2 hrs.
Designed for advanced graduate students who plan to assume leadership and supervision responsibilities in the continuing education of counselors. Includes didactic discussions of the elements of counseling supervision and practical experience in counselor education. Graded on a Credit/No Credit basis.

691 Practicum in Counseling and Psychotherapy Supervision II 2 hrs.
A continuation of C-P 690.

692 Advanced Practicum in Counseling and Psychotherapy I 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. Individual supervision required. Graded on a Credit/No Credit basis. Prerequisite: Consent of instructor.

693 Advanced Practicum in Counseling and Psychotherapy II 4 hrs.
A continuation of C-P 692.

694 Vocational Development Theory 2 hrs.
A critical examination of existing theories of vocational development, the motivation to work, and their application to the counseling process. Research pertaining to vocational development and the world of work will be analyzed.

696 Practicum in Group Counseling 3 hrs.
Supervised practice in counseling with groups of varying types and ages. Staffing conferences of on-going groups will use audio and video tapes, content analysis, and other evaluative techniques. Prerequisite: Consent of instructor. Graded on a Credit/No Credit basis.

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

700 Master's Thesis 6 hrs.
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, Curry, Dickie, Erickson, Fisk, Harring, Heining, Inselberg, Kanzler, Lambie, Larsen, Lloyd, McGinnis, Middleton, Moore, Associate Professors Baikin, Blatt, Brenton, Burns, Chapel, Cordier, Hong, Howard, Kilty, Miller, C. Smith, Walker, Assistant Professors Armstrong, Bailey, Brashear, Cowden, Crowell, D. Smith, Watson.

Open to Upperclass 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 appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 502 may be applied toward a master's degree.

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 lifestyles, midlife career changes, 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 inservice 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 considerations in the selection of content, and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with children in a classroom setting will be emphasized.

508 Parent Education 2 hrs.
Places major emphasis on home problems which have educational implications for the child. Parent-teacher relationships, council programs, and cooperative efforts for improvement of education in home and in school are studied.

509 Parent Education for Teachers of Young Children 3 hrs.
Presents a variety of techniques for teachers to use in working together with parents. Teachers will study child-rearing factors which parents most need to know. The course will help teachers to develop their own record-keeping systems, ways of involving parents in their children's education, and ways of making meaningful reports to parents. The education of parents as aides is included.

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.

512 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.

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.

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 perspectives, a staff of social scientists will share with the participants their thinking concerning significant ideas and concepts from their disciplines that further amplify topics covered. Opportunities will be provided for the participants to implement social studies methods and skills in actual 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, psychological, 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.

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.

521 Piaget and Young Children
3 hrs.
Examines significant contributions of Piaget to our understanding of young children's learning. Knowledge of how young children think will be applied to early childhood curriculum. Teachers will apply Piagetian tasks and will be able to improve curriculum for young children with growing understanding of these children's minds.

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 effective factors of environment and their relation to teaching and learning. Extensive use is made of consultants from social, governmental, and educational agencies working with the disadvantaged.

542 Administration and Methods of Driver Education
2 hrs.
History, philosophy, and psychology of driver education. Emphasis on 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 presentation, interactive, and individualized modes of instruction. Emphasizes evaluation, selection, production, 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.
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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 camera. Limited to fifteen students. Prerequisite: ED 548 or equivalent experience.

550 Photography Workshop 1-3 hrs.
Intended to sharpen visual perception while improving technical skills, this laboratory course emphasizes photography as a creative and expressive medium of visual communication. Each student is expected to produce new photographs each week and to submit one or more mounted enlargements for group critique at each class meeting. Each student must have the use of appropriate equipment and should expect to spend $25 or more for supplies. Although no prerequisite is required, it is helpful to have had some experience with basic darkroom processes. May be repeated up to a total of six credits. Limited to fifteen students.

552 Comparative Education 3 hrs.
This course is intended to provide students with an introduction to the field of comparative cross-cultural education. The 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 familiarly 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 an 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. The final project will be taught by experts from appropriate fields within and outside 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
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 influence 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.

611 Informal Approaches to Studying Young Children's Development
3 hrs.
The course helps teachers to observe, evaluate, and guide young children's growth while developing their skill in informal observation techniques. Teachers will learn about their children from new perspectives, recognizing and meeting children's needs. Evaluation procedures will help to account for children's psychological and social growth while creating classroom conditions to maximize this growth.

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.

613 Early Childhood Problems and the Teacher
3 hrs.
Deals with concepts of "discipline" and questions of behavior. Teachers will acquire practical knowledge of research concerning children's social behavior and will review and apply systems for promoting prosocial behavior in their classrooms.

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 knowledge of both standardized and informal reading tests. Students should have the opportunity to construct, administer, score, and interpret both standardized and nonstandardized 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. 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 techniques 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. Prerequisite: ED 530 or consent.

635 Mainstreaming Exceptional Children in the Regular Classroom
3 hrs.
For nonspecial education personnel. The course examines the evolution and implications of the mainstreaming concept; the mandates of state and federal legislation; program assessment at the interface of special/regular education; the categorical characteristics of impaired children; psychoeducational identification and diagnosis of special needs; diagnostic-prescriptive teaching; behavior management; accessing to support services; and writing IEPs. Not normally for certification in special education.

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 interviewing, 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 advisor. (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. 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 inservice 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 in an on-going 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 a “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.

652 Language, Reading, and the Young Child 3 hrs.
The course focuses on language and the nature of the reading process and its development from birth through the primary grades. Teachers will explore contemporary reading and language programs from this point of view. Deeper understanding of language-reading processes will enable teachers to arrive at ideal language development-reading programs for the children they teach.

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 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 admin-
istrators 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.

687 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. Em-
phasis is placed on aims, materials,
and procedures. Graduate students will
become knowledgeable with the
readability of textbooks and how to
adjust work to range of ability. Op-
opportunities for understanding and
using standardized and informal instru-
ments as measures of student pro-
gress will be afforded. Emphasis will
be placed on the organization of
course work for improving reading
skills. Prerequisites: ED 312 or 327.

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
division and community college
movement, the function of the com-
munity college in the total educational
program, the divergent aims and
curricular requirements of pre-
professional, academic, and
prevocational 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
1-3 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 in-
service 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 or 4 hrs.
Designed for students who are in-
terested 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 descrip-
tion.

700 Master's Thesis
6 hrs.

710 Independent Research
2-6 hrs.

712 Professional Field Experience
2-12 hrs.

Educational Leadership
(EDLD)

Shettle, Chairperson; Professors Boles,
Stufflebeam, Weaver; Associate Pro-
fessors Bunda, Davenport, Dykstra,
Munsterman, Sanders, Smidchens,
Warfield

Topical descriptions are available in
the department office, 3102 Sangren
Hall.

660 Administration
2-4 hrs.
Offerings in this area are intended to
allow organizational leaders to acquire
the general understandings, skills, and
tools necessary in the operation of
agencies and to provide service
courses for teachers and other person-
nel. 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. Introduction to Educational Leader-
ship (the first course in any degree
program in this department)
b. School Principalship
c. School Law
d. School Business Management
e. Administration of Higher Education
f. Principles of Community Education
g. Professional Development Seminar
h. Critical Management Problems
i. Advanced Seminar in Community
Education

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
Typical topics offered include:

**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, to a maximum of 4 hrs.

**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.
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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:
- Smoking Education
- Drugs and Narcotics
- Venereal Diseases
- Consumer Health
- Cardiovascular Health
- Stress Release
- Bio Feedback
- Patient Education
- Health Careers

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 rehabilitation and rehabilitation programs for handicapped people.

530 Practicum in Teaching and Coaching 1-2 hrs.
Demonstrations, participation, and evaluation of 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
- Kalarie
- 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 a 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 PERS 590. Exercise Physiology. Topic of PERS 590. Prerequisite: approval 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.

Accompanies 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
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
- Mamstreaming

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.

661 Problems and Trends in Health, Physical Education, and Recreation

2 hrs.

Deals with modern trends, and with instructional and supervisory problems involved in conducting an effective program of physical education 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 supervisor's 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

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:

- a. Cranio-cerebral, Spinal, Thoracic, Pelvic, and Abdominal Injuries
- 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.
Open To Upperclass and Graduate Students

Special Education (SPED)

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 curriculum. 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 SPEC 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 behavioral 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: SPEC 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: SPEC 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 course is practical experience with 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 of handicapped adolescents and adults will be discussed.
588 Behavior Disorders in School-Aged Learners
3 hrs.
Deals with the psychoeducational aspects of disturbed or disturbing behavior as related to the school program. Issues and problems associated with normal development, concepts of diagnosis, and the incidence of 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.

589 Programs and Intervention Strategies for the Socially and Emotionally Maladjusted
4 hrs.
This course, open only to majors in Special Education curricula, will emphasize techniques and procedures applicable to socially-emotionally maladjusted 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 emphases are 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
4 hrs.
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, neurotic dysfunctions, 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 CA. Emphasis will be placed on situation specific teaching roles and on curriculum 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 persons. 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. Prerequisites: 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 type of research and evaluation in special education, the use of the scientific approach, research and evaluation designs, 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 knowledge 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 teacher 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 Training in Special 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.

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.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

730 Doctoral Dissertation 15 hrs.
College of Fine Arts

Robert W. Holmes, Dean
Ann S. Jennings, Associate Dean

Graduate Offerings
Art
Dance
Music
Theatre
Art (ART)


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.
ART 510 Repeatable for credit
Open to Graduate Students Only
Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

590 History of 20th Century Art 1945 to Present
Major trends in art since World War II are discussed. Included are Abstract Expressionism, pop and Op art, the new realists, and conceptual art. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

591 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, Daumer, 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, Marin, Pollock, David Smith, and recent developments.

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.

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 to the works and influences of Wright, LeCorbusier, and Mies van der Rohe. Prerequisite: ART 220 and 221 for Art majors and minors; none for other students.

Open to Graduate Students Only

610 Advanced Drawing
1-6 hrs.
Graduate level work in drawing. Prerequisite: ART 510. Repeatable for credit.

613 Graduating Presentation
2 hrs.
Preparation and presentation of graduating exhibition, portfolio, and oral examination or written thesis, with the assistance of the student's major adviser. Evaluated by a departmental reviewing committee. Prerequisite: Last year of graduate study.

620 Independent Study in Art History
2-3 hrs.
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: ART 220, 221, and a 500-level course in the area of interest 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 Metallurgy
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 Print Workshop Seminar
1-6 hrs.
Advanced research in development of personal concept, method, and uses of graphic processes. Emphasis on personal expression: exploration toward an individual and mature imagery. Prerequisite: ART 541.

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 Art Teaching Seminar
1 hr.
This course examines current issues and directions in Art Teaching. Content centers on extensive reading as related to relevant issues; presentations of papers by course participants; discussions and guest speakers.

657 Issues in Art Teaching
3 hrs.
(a) Creative Problem Solving: This topic will study creative problem solving and problem solving strategies as they relate to Art Teaching. Course work centers on examination of creative problem solving through various subject areas and studio related activities. Repeatable for credit.
(b) Inter Arts: This topic is designed for the public school Art teacher, to study the inter-relationship of the Arts and how both historical and studio programs can be developed and supported through team planning/teaching and audiovisual/video operation. Repeatable for credit.
(c) Relating Art: This topic is designed for teachers of the arts to study cognitive and affective inter-relationships of Art, Music, Dance, Drama or Poetry as educative values. Performance skills are taught using the technical vehicles of coordination, correlation, translation, and integration through both historical review and direct form making. Repeatable for credit.
(d) Research in Art Teaching: This topic reviews current research in Art Teaching directed towards classroom application. The course will consist of
presentations and discussions on published research and will lead to written proposals for in-the-field studies. Repeatable for credit.

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
2 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
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
2 hrs.
The study of the production aspects of dance including sound, lighting, costuming, make-up and stage management. Practical applications will include first-hand experience in creating tape collages with special effects, designing lighting, costumes and make-up.

589 Dance Management
2 hrs.
Course covers Front of House aspects of management and publicity: budget; programming; organization of elements involved in company management; and grantsmanship. Practical application of these principles will be evaluated wherever possible.

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
1-4 hrs.
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. Approved application required.

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.

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 public 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)

Bullock, Chairperson, Professors
Appel, Butler, Holmes, Humiston, Ivey, Kyser, Meretta, Rappeport, Sanders
Suddendorf; Associate Professors
Allgood, Boucher, Brown, Curtis-Smith, Fulton, Hahnenberg, Hardie, Heim,
Kynaston, McCarthy, Osborne, Ricci, Sheldon, Whaley, Wilson, Work,
Zastrow, Zupko; Assistant Professors
Sheldon, Whaley, Wilson, Work, 
Kynaston, McCarthy, Osborne, Ricci,
Fulton, Hahnenberg, Hardie, Heim,
Instructors Newsom, Varner.

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. 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.

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.

530 Advanced Choral Conducting
2 hrs.
Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance. Prerequisite: MUS 330.

531 Advanced Instrumental Conducting
2 hrs.
Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: MUS 331.

540 Elementary School Music
2 hrs.
Emphasizes the place of music in the curriculum and the use of music in the day-to-day activities in the classroom. The fundamental musical skills are developed in order to assist the teacher to achieve these objectives.

541 Music Supervision and Consultation
2 hrs.
A study of the structuring and implementation of a music education program in the schools, in terms of three organizational relationships: the music administrator or supervisor, the scheduled music teacher, and the unscheduled music consultant. Relation of music specialist to classroom teacher.

542 Studies in Music Education
2 hrs.
Topic to be announced. Selection will be made from the following or similar topics: Music in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated to an accumulation of not more than four credits.

543 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.

550 Music Appreciation: The Symphony
3 hrs.
The course in THE SYMPHONY is a general music course which presents music for symphony orchestra from the listener's point of view. It deals with the materials, structure, texture, sonority, and style of orchestral music since the mid 18th century, as well as the cultural milieu which gave rise to and brought about changes in musical style. Music reading ability not required. Not open to graduate music majors. General Education Area I.

555 Jazz Arranging
2 hrs.
Jazz Arranging is a study of the art of arranging for the jazz ensemble—both traditional and contemporary. The course will undertake a detailed study of instrument ranges, transpositions, and sound potential, and will cover voicings, scoring practices, calligraphy, and contemporary trends within the medium. Prerequisite: MUS 264 or MUS 264 concurrently.

556 Advanced Jazz Arranging
2 hrs.
A study and application of the art of arranging for the jazz ensemble, studio orchestra and show orchestra. The course will undertake a detailed study of scoring for winds, brass, strings, voices and percussion in relation to traditional and contemporary trends within the medium. Prerequisite MUS 555.
558 Jazz Improvisation I 2 hrs.
A study and directed application of the fundamentals of jazz improvisation including basic chord and scale construction and recognition, harmonic function, chord-scale relationships and basic blues and popular song forms. All students will be required to developaural and performance skills relative to those theory skills. Prerequisite: 161, C or better.

559 Jazz Improvisation II 2 hrs.
A study and directed application of advanced techniques of jazz improvisation including chord extension, voicing, inversions and substitutions, chord function and progressions and complex scales and their applications. All students will be required to develop aural and performance skills relative to those theory skills. Prerequisite: 558, C or better.

560 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.

561 Counterpoint 2 hrs.
A continuation of MUS 560. Prerequisite: MUS 560.

562 Advanced Composition 2 hrs.
A study of twentieth century techniques in composition with original work in vocal and instrumental forms. Prerequisite: MUS 362.

563 Advanced Composition 2 hrs.
A continuation of MUS 562. Prerequisite: MUS 562.

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. Prerequisite: MUS 161.

567 Orchestration 2 hrs.
A study of the characteristics of instruments, and of arranging for 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.

570 Introduction to Musicology 3 hrs.
History, purposes, scope of musicology, leading historians, past and present; modern methods of research, with special emphasis on primary sources and bibliography of the field.

571 Introduction to Musicology 3 hrs.
A continuation of MUS 570.

572 Baroque Music (1600-1750) 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. Prerequisite: 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 and 271.

581 Choral Music Literature 3 hrs.
A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

582 Western Music Before 1600 4 hrs.
A survey of music to 1600. Major developments in style, notation and performance practices will be stressed using works of theorists and primary manuscript sources.

583 Jazz History and Literature 3 hrs.
A survey of the history of jazz including aspects of sociology and history as they relate to the art form of jazz. All periods in jazz history, from its earliest roots in Africa and the slave culture in the United States, up through the blues, dixieland, swing, bop, mainstream and the more eclectic period of jazz rock and free-form jazz will be explored. Important works will be examined from each period in order to grasp the essentials of a particular style.

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. Prerequisite: 300 level applied voice or permission of instructor.

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.

594 Electronic Media 2 hrs.
The purpose of this course is to expose the student to the equipment used in various recording situations, and its operation, as well as discussing the artistic use of this equipment. Although predominately a technique
course, areas which affect the creative aspects of the final recording will be discussed (such as microphone placement, tasteful vs. inappropriate editing, etc.). In addition to the recording aspects, other electronic instruments used in performances will be surveyed, including synthesizers of various types (both keyboard and non-keyboard) and traditional electronic instruments (guitars, electronic organs, electronic pianos, and various sound modification devices).

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. 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.

628 Performance Practices in String Literature
2 hrs.
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 of Music Education
2 hrs.
Designed to acquaint the student with aesthetic and pragmatic thinking regarding the nature and value of music, and to provide a rationale for curricular development and teacher behavior.

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 Counterpoint
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 Counterpoint
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. Prerequisite: MUS 563.

664 Form in Music
2 hrs.
A survey of the musical forms, large and small, used from the Baroque period to the present day. Analysis of both structure and texture of representative works of the various periods and styles.

665 Band Arranging
2 hrs.
Instruction in scoring for small wind instrument ensembles and the band. Opportunity will be provided to hear the results of each student's work.

666 The Teaching of Theory (on demand)
2 hrs.
Analysis of various techniques, philosophies, and materials used in teaching theory and their relative strengths and weaknesses. Application of what we know about the learning processes to theory and the practical application of theory to all musical study.

667 Advanced Orchestration
2 hrs.
Scoring 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 566.

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 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 601.

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.
712 Professional Field Experience
2-12 hrs.

Theatre (THEA)

Luscombe, Chairperson; 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.

536 Costume Creation
3 hrs.
Study and practice of costume style and design through construction, fabric painting, and decoration of surfaces. Prerequisites: THEA 335, 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: THEA 340 or consent of instructor.

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 middle and high school teachers with philosophies, methods, and creative procedures for teaching theatre. Emphasis placed
upon qualitative theatre programming. Prerequisite: Student must have completed at least 15 hours in the Theatre Department and take course prior to student teaching and TEED 301.

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 graduate study in the fine arts. Prerequisite: THEA 370, 371 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 schedules. Number of credits and length of workshop determined by focus of topic studies. See Summer Schedule of Classes for specific offerings. Prerequisite: Variable (see Schedule of Classes). Topics may include: Acting, Costuming, Design, Directing, Improvisation, Lighting and Sound, Make-up, Management, Technical Theatre.
Humanities Area (GHUM)
D. Porter, Chairperson, Associate Professor Adams, Carlson, David, dePaepe, Dooley. Assistant Professors Rodri, Ten-Hamsel.

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.

Science Area (GSCI)
R. Flaspohler, Chairperson. Associate Professor Bach

534 Moral and Philosophical Foundations of Health Care
4 hrs.
In this course philosophical reflection and biological science are combined in a critical examination of the nature and purpose of health sciences. Topics to be considered include: The aims of the health sciences, the interplay of fact and value in health care, competing images of humankind embedded in health science, patient autonomy, dignity and medical paternalism. This is a cross-college interdisciplinary course which is team taught with faculty from the Philosophy Department. (Cross-listed with PHIL 534.)
College of Health and Human Services

William A. Burian, Dean
Barbara D. Marks, Associate Dean

Graduate Offerings
Blind Rehabilitation
Gerontology Specialization
Health and Human Services
Occupational Therapy
Social Work
Speech Pathology and Audiology
Specialty Program in Alcohol and Drug Abuse
Blind Rehabilitation (BLRH)
Blasch, Chairperson; Professors Kaarlela, Suterko, Associate Professor LaDuke, Assistant Professors Ponchillia, Weessies, Widerberg.

Open to Upperclass 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 protheses.

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.
Techniques are acquired under conditions which enable the student to gain an insight into the experiences of blind individuals, as related to travel skills. Emphasis is placed on the utilization of the remaining senses and their relevancy to interpretation of environmental information. Consent of instructor.

596 Practicum in Orientation and Mobility
4 hrs.
Orientation and mobility techniques and the proper methods of incorporating them into a person's method of travel. Guided observation and practice with blinded individuals ranging in age from the prekindergarten through the aged in various environments, such as: school, residence, community, and work situations. Consent of instructor.

597 Introduction to Cécuitency
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.

694 Inter-Professional Seminar Regarding Blind Multi-handicapped Persons
1 hr.
Interdisciplinary approach to the study of multi-handicapping 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 Orientor 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.

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 skills 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 study. 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 related to problem solving in health and human services. It is a skills development course which helps students to become proficient with theoretical constructs 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.

570 Field Education
1-6 hrs.
This registration is designed to give the student a total learning experience during which the student can apply some of the knowledge and information obtained in the health and human services academic setting and further develop and refine his/her professional skills with the guidance and assistance of those professionals currently working in the health and human service area. By permission 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.

Occupational Therapy (OT)
Rider, Chairperson; Professor Tyndall, Associate Professors Bush, Lewis, Assistant Professors Cooper, Edwards, Lukens, Richardson, Schmid, 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 relationships. 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 affilieating students. Course includes review of traditional clinical education program and the exploration of varied and unique teaching situations.

666 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 Barstow, Burian, Flynn, Kramer, Pawlik, Winberg, Associate Professors Braithwaite, Dadlani, Lish, McCaslin, Reid, Thompson. Assistant Professors Blakely, Buffum, Cooney, Deshler, Greene, Jones, Joslyn, Leightinger, Mathews, Phillips, Robb, Sung, 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 topics 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 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.

633 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 in-
Social Work Practice

Open to Upperclass and Graduate Students

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, parole, 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 deviance 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 homes by various interventive means are explored. Prerequisite: Consent of instructor.

567 Institutional Correctional Social Work
3 hrs.
Social work treatment 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

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 I 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 introrganizational and interorganizational management issues.

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 forming 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 (casework and group work) are offered. Major emphasis will be on development of skill in direct social work practice with clients. For students demonstrating readiness and who anticipate assumption of supervisory tasks immediately following graduation, the placement plan and experiences will afford primary emphasis in skill development and in the range of supervisory role tasks and responsibilities. Campus or field-based seminars will supplement the field experience. Prerequisite: SWRK 672 or consent of 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

654 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.

598 Readings in Social Welfare and Social Work
1-4 hrs.
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

666 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
2-6 hrs.

Speech Pathology and Audiology (SPPA)

Erickson, Chairperson; Professors Bate, Stromsta, Willis; Associate Professors Clark, Loehr; Assistant Professor Lawson.

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 audiology. Prerequisites: SPPA 204, 205, 206.

551 Neuropathologies of Speech
2 hrs.
This course is concerned primarily with surveying selected communication disorders associated with neuropathologies. Prerequisites: SPPA 200, 203, 205.

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, 358.

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 audio-metric 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.

613 Industrial and Public Health Audiology
2 hrs.
A study of hearing conservation programs in industry including noise measurement, damage-risk criteria, hearing measurement, and medicolegal problems, noise in communities, noise as a public health hazard, and hearing screening and deafness prevention programs.

650 Seminar in Speech Pathology
1-4 hrs.
Selected topics in speech pathology are systematically explored through critical analyses of literature and through individual study projects. Voice disorders, articulation disorders, language disorders, cleft palate, and stuttering are among the possible
areas of study. Topics vary from semester to semester and are announced in advance. May be repeated.

651 Seminar in Speech and Hearing Science
2-4 hrs.
Selected topics in speech and hearing science are systematically explored through critical analyses of literature and through individual study projects. Instrumentation, procedures, and techniques employed in perceptual, physical, and physiological analyses of normal speech and hearing are among the areas considered. Topics vary from semester to semester and are announced in advance. May be repeated.

652 Seminar in Audiology
2-4 hrs.
Selected topics in audiology are systematically explored through critical analyses of literature and through individual study projects. Pediatric audiology, geriatric audiology, hearing aids, residual hearing, and aural rehabilitation are among the possible areas of study. Topics vary from semester to semester and are announced in advance. May be repeated.

653 Diagnosis and Appraisal I: Principles
Fall, 3 hrs.
This course is intended to provide theoretical basis for the examination of persons with speech, hearing, and language disorders.

654 Diagnosis and Appraisal II: Procedures
Winter, 2 hrs.
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 out-patient diagnostic examinations is required.

655 Diagnosis and Appraisal III: Practicum
2 hrs.
In this registration students are afforded the opportunity in out-patient diagnostic examinations.

656 Disordered Language Development
Winter, 3 hrs.
Procedures and techniques for the identification, diagnosis, and clinical management of developmental disorders of language are explored intensively in this course.

657 Theoretical Bases for Therapy
3 hrs.
In this course disorders of communication are examined in terms of servo-system, learning theory, and personality theory.

659 Principles of Professional Practice
2 hrs.
Currently identifiable professional and philosophical questions are defined and studied with reference to the history of the development of the profession of speech pathology and audiology.

660 Voice Disorders
3 hrs.
Organic and functional disorders of laryngeal and resonator origin and studies in depth.

661 Articulation Disorders
2 hrs.
This course considers in detail the nature and treatment of functional misarticulations and of misarticulations associated with cleft palate.

662 Stuttering
3 hrs.
Theories and therapies applicable to the understanding and clinical management of stuttering are studied in depth.

663 Aphasia in Adults
3 hrs.
This course deals comprehensively with the identification and treatment of communication problems in the adult aphasic individual.

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.
Jean E. Lowrie,
Director

Graduate Offering
Librarianship
Librarianship (LIB)

Lowrie, Director; Professor Grozinger; Associate Professors Baechtold, Carroll, McKinney, Murphy. Assistant Professors Embs, Eriksen, Frankei, Guise, Rice, Smith.

Open to Upperclass and Graduate Students

505 Introduction to Computers
2 hrs.
The BASIC programming language is used to acquaint students with the computer facility and with the abilities of computers. The course consists of one hour of lecture and one hour in a recitation section each week. Computer terminology and capabilities are explained. Student-written computer programs are executed and related to a variety of computer applications. Illustrations will be given of programming techniques and the significance of computers in contemporary society. Prerequisite: 1 1/2 years of high school algebra or MATH 111.

510 Collection Development
3 hrs.
Introduction to the basic principles of building collections for libraries and information centers. Includes selection and evaluation of materials for individual collections and examination of principles and examples of library resource sharing.

512 Reference Services
3 hrs.
Examination of reference sources, print and non-print, their evaluation, and the ways in which they may be used to provide service. Includes reference interview techniques, search strategies, and automated searching.

530 Introduction to Cataloging and Classification
3 hrs.
Introduction of the theories and practices of cataloging and classification. Emphasis on Dewey Decimal Classification, subject cataloging from the Sears and Library of Congress headings, descriptive cataloging of monographs, serials, and non-print materials, filing rules, and OCLC terminal utilization. Includes cataloging laboratory.

535 Introduction to Information Science and Technology
3 hrs.
Survey of the design of information systems, search and retrieval procedures, display alternatives, reproduction and transmission of records, and networking basics. Emphasis on recent theories and technological developments as applied to libraries and information centers.

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.

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.

598 Readings in Librarianship
1.3 hrs.
Offers a program for the advanced student for independent study in a special area of interest, arranged in consultation with a graduate advisor. Written permission of instructor required.

Open to Graduate Students Only

600 Libraries and Librarianship
3 hrs.
An introduction to librarianship through study of the role and functions of the modern library, its historical development, and the contributions of libraries and the profession to society. Composed of three one-hour units. (600 I—Introduction to Libraries and Librarianship; 600 II—History of Libraries and Librarianship; 600 III—Librarianship as a Profession)

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, invention and spread of printing and evolution of book production.

607 Library Experience
2.3 hrs.
An introduction to library activities and services through assignment to a selected library. For each credit hour received, thirty-five 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. Credit/no credit.

611 Resources in the Humanities
3 hrs.
Examination of the nature of the disciplines and research approaches in the humanities. Includes an analysis of selected traditional and non-traditional forms of bibliographic control with emphasis on searching and problem solving. Prerequisite: LIB 512 or equivalent.

612 Resources in the Social Sciences
3 hrs.
Examination of the characteristics of users of social sciences information and the nature of research methods as they affect access to materials. Includes analysis of selected traditional and non-traditional bibliographic control with emphasis on problem solving and search techniques. Prerequisite: LIB 512 or equivalent.

613 Resources in Science and Technology
3 hrs.
Examination of the characteristics of scientific information users and the scientific method as it affects organization of resources. Analysis of selected traditional and non-traditional forms of bibliographic control is combined with use of alternative search strategies. Prerequisite: LIB 512 or equivalent.

614 Government Publications
3 hrs.
Examination of government publications, their acquisition and organization, and the special problems involved in providing user service. Focus is on United States federal documents.

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.

617 Reading Guidance for Children
3 hrs.
A study of the development of children's literature from approximately the 18th century in England and the American Colonial period to the present time. Includes principles and techniques in guidance of children's reading interests and evaluation of current literature.

618 Media Technology in Libraries
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, school, and special library situations.

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.

628 Survey of Special Libraries
3 hrs.
Current developments in services to various clienteles of special libraries and information centers. Includes the Alberta L. Brown lecture series.

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: 24 hours of librarianship courses or written permission of instructor.

630 Advanced Cataloging and Classification
3 hrs.
Continuation of Introduction to Cataloging and Classification, L1 BRARIANSHIP 630. Emphasis is also given to development of catalogs and cataloging codes. Library of Congress classification and subject headings, cataloging of rare books, and computerized shared cataloging. Prerequisite: LIB 530 or permission of instructor.

631 Technical Services for School Media Center
3 hrs.
Organization of book and non-book 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. Introduces computerized shared cataloging. Laboratory experience required.

632 Technical Services Seminar
3 hrs.
Seminar on contemporary issues in the areas of technical services. Topics vary. Prerequisites: LIB 510, LIB 530, 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 designing mechanization of a library task.

635 Information Storage and Retrieval
3 hrs.
Design of information storage and retrieval systems, with emphasis on automated aspects. Includes consideration of characteristics of media used for the storage of information, and indexing and bibliographical control procedures used in retrieval systems; with emphasis on non-traditional methods. Trends and developments in modern information technology and methods of information dissemination are considered. Prerequisite: LIB 529 or 550, taken prior to or concurrently with 655, or permission of the instructor.

636 Indexing, Abstracting, and Automated Language Processing
3 hrs.
A seminar approach to the problems of bibliographic 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.
Course covers three topics on on-line searching of data bases. Topic A: Introduction to on-line systems, consideration of communication networks and computer terminal equipment, and comparison of on-line systems. (1 hour) Topic B: On-line searching using Lockheed's DIALOG system. (1 hour) Topic C: On-line searching using System Development Corporation's ORBIT system. (1 hour) 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
3 hrs.
A seminar dealing with improvement of library service to the educationally and socially disadvantaged. Public and school library programs of outreach, information and referral, and work of community agencies will be discussed as models for programming at various age levels. Students will observe, participate in, and plan programs relevant to specific phases of library service to the disadvantaged.

650 Advanced Seminar in Librarianship
2 hrs.
Analysis and study of specific problems in contemporary library practices. Lectures, field trips, and resource consultants. (Offered irregularly)

652 Seminar in International Librarianship
3 hrs.
Opportunity to study the development, current status, and programs 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 of 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. (All minicourses are numbered 690)
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.
Laurel Grotzinger, Dean
Rollin Douma, Associate Dean, Program Development
Sid Dykstra, Associate Dean, Student Services
Conrad Katzenmeyer, Associate Dean, Research
Telephone: 616-383-1660

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 units of from two to six hours; however, the election must be made in no more than two units and within a calendar year. An application form (available in all departments) must be submitted to Registration at enrollment time. Prior to enrollment, this form must be signed by: 1) the thesis adviser; 2) the department chairperson; 3) the Administrative Assistant for Graduate Programs in The Graduate College. 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 in off-campus activities 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.
The Specialist project is designed for all units offering the Specialist degree. An application form (available in all departments) must be submitted to Registration at enrollment time. Prior to enrollment, this form must be signed by: 1) the project adviser; 2) the department chairperson; 3) the Administrative Assistant for Graduate Programs in The Graduate College. 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 is required in all doctoral programs and must reflect an appropriate creative effort on the part of the student. An application form (available in all departments) must be submitted to Registration at enrollment time. Prior to enrollment, this form must be signed by: 1) the committee chairperson; 2) the department chairperson; 3) the Administrative Assistant for Graduate Programs in The Graduate College. 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.
With permanent approval

Adams, David W., 1956. Professor of Education and Professional Development
  B.A., Ohio Wesleyan;
  M.A., Ed.D., New York

Adams, Phillip D., 1970. Associate Professor of Humanities
  B.A., Western Michigan;
  M.A., Ph.D., Ohio

Alag, Gurbux S., 1977. Assistant Professor of Electrical Engineering
  B.E., Savgor (India);
  M.E., Calcutta (India);
  D.Eng., Rensselaer Polytechnic

Alavi, Yousef, 1958. Professor of Mathematics
  B.S., M.S., Ph.D., Michigan State

Alessi, Galen J., 1974. Assistant Professor of Psychology
  B.S., Maryland;
  M.A., Western Michigan;
  Ph.D., Maryland

Allgood, William T., 1969. Associate Professor of Music
  B.S., East Carolina;
  M.M., Illinois;
  D.M.A., Michigan

Anderson, Robert H., 1957. Associate Professor of Chemistry
  B.A., Baker;
  M.A., Ph.D., Columbia

Appel, William C., 1965. Professor of Music
  B.S., State Teachers of Indiana (Pa.);
  M., Mus., Indiana

Argyropoulos, Triantafillos, 1964. Associate Professor of Art
  B.S., M.F.A., Michigan

Armstrong, James W., 1968. Assistant Professor of Education and Professional Development
  B.S., Northwestern;
  Ed.D., Indiana

Asher, E. Jack, Jr., 1954. Director of Institutional Research and Professor of Psychology
  B.S., Kentucky;
  M.S., Ph.D., Purdue

Atkins, Michael B., 1971. Associate Professor of Industrial Education
  B.S., M.S., East Texas State;
  Ed.D., Texas A & M

Baechtold, Marguerite, 1967. Associate Professor of Librarianship
  B.A., Montclair;
  B.S.L.S., Columbia;
  Ed.S., Western Michigan University

Bafia, Kailash, 1979. Associate Professor of Industrial Engineering
  B.S., Banaras Hindu;
  M.S., Mississippi;
  Ph.D., Purdue

Bailey, Frederick S., 1958. Assistant Professor of Education and Professional Development
  B.S., M.A., Western Michigan;
  Ph.D., Michigan State

Bailey, Thomas C., 1970. Assistant Professor of English
  B.A., Oberlin College;
  M.A., Missouri;
  Ph.D., Washington (St. Louis)

Baker, Ahmad, 1977. Assistant Professor of Special Education
  B.S. & M.S., Old Dominion University (Virginia);
  Ph.D., University of Virginia

Baker, Lee O., 1954. Professor and Head, Department of Agriculture
  B.S., Wisconsin State (Platteville);
  M.S., Wisconsin;
  Ed.D., Michigan State

Balkin, Alfred, 1971. Associate Professor of Education and Professional Development
  B.A., M.A., Indiana;
  M.A., Ed.D., Columbia

Barstow, Robert H., 1965. Professor of Social Work
  B.A., Western Michigan;
  M.S.W., Michigan

Batch, Nicholas C., 1972. Assistant Professor of General Business
  B.A., Michigan;
  M.B.A., Western Michigan;
  J.D., Wayne State

Bate, Harold L., 1964. Professor of Speech Pathology and Audiology
  B.A., Butler;
  B.A., Florida;
  M.A., Ph.D., Wisconsin

Beam, Henry H., 1975. Assistant Professor of Management
  B.S.E., Princeton;
  M.S.E.E., M.B.A., Ph.D., Michigan

Beech, George T., 1960. Professor of History
  B.A., Michigan State;
  Ph.D., Johns Hopkins

Behm, Harley D., 1967. Professor and Chairperson, Department of Transportation Technology
  B.S., Northern Montana;
  M.Ed., Ed.D., Missouri

Belonax, Joseph J., 1978. Assistant Professor of Marketing
  B.S., M.B.A., Northern Illinois;
  Ph.D., Nebraska

Belson, Beverly A., 1974. Associate Professor of Counseling and Personnel
  B.A., University of Northern Iowa;
  M.A., Syracuse University;
  Ph.D., Michigan State University

Bendix, John L., 1955. Professor of Industrial Education
  B.S., Stout State;
  M.A., Minnesota;
  Ed.D., Indiana

Benn, Max E., 1964. Associate Professor of Agriculture
  B.S., M.S., Ed.D., Michigan State

Bernt, Donald C., 1962. Professor of Chemistry
  B.S., Ph.D., Ohio State

Bernstein, Eugene M., 1968. Professor of Physics
  B.S., M.A., Ph.D., Duke

Betz, Robert L., 1961. Professor of Counseling and Personnel
  B.A., Albion;
  M.S., Illinois;
  Ph.D., Michigan State

Beuving, Leonard J., 1970. Associate Professor of Biomedical Sciences
  B.A., M.A., Ph.D., California (Berkeley)

Bigelow, Gary E., 1979. Assistant Professor of Spanish
  B.A., Franklin and Marshall;
  M.A., Ph.D., Pittsburgh

Bischoff, Guntram G., 1965. Professor of Religion
  University of Bonn;
  University of Gottingen;
  B.S., Th.D., Princeton Theological Seminary
Bladt, Dorothy L., 1968, Associate Professor of Education and Professional Development
B.S., Chicago;
M.S., Ed.D., Northern Illinois

Blakely, Thomas J., 1978, Assistant Professor of Social Work
B.A., Notre Dame;
M.S.W., M.A., Ph.D., Michigan

Blasch, Donald, 1961, Professor and Chairperson, Department of Blind Rehabilitation
B.E., Northern Illinois;
M.A., Chicago

Bliefko, Robert L., 1968, Associate Professor of Mathematics
B.A., Kutztown State;
M.A., Ph.D., Pennsylvania State

Bliss, James R., 1968, Associate Professor of General Business
B.A., Nebraska Wesleyan;
J.D., Michigan

Boedvortt, Robert J., 1979, Associate Professor of Marketing
B.B.A., University of Michigan;
Ph.D., Michigan State

Boles, Harold W., 1961, Professor of Educational Leadership
B.S., Indiana State;
M.A., Ph.D., Ohio State

Booker, Gene S., 1960, Professor of Management
B.S., Ball State State;
M.A., Ph.D., Indiana

Bosco, James J., 1965, Professor of Education and Professional Development
B.Ed., Duquesne;
M.Ed., Pittsburgh;
Ed.D., Columbia

Boucher, Joan Ann, 1966, Associate Professor of Music
B.M., M.M., Chicago Musical;
Ph.D., Boston

Bouma, Donald H., 1960, Professor of Sociology
B.A., Calvin;
M.A., Michigan;
Ph.D., Michigan State

Bournazos, Kimon, 1965, Professor of Business Education and Administrative Services
B.S., M.S., Ph.D., Michigan State

Bowman, Joel P., 1975, Associate Professor of Business Education and Administrative Services
A.B., A.M., Ph.D., Illinois

Breithwaite, Lloyd, 1968, Associate Professor of Sociology
B.S., M.Crim., D.Crim., California (Berkeley)

Branchaw, Bernadine P., 1971, Associate Professor of Business Education and Administrative Services
B.A., College of St. Francis;
M.S., Ed.D., Northern Illinois

Brashear, 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

Breisach, Ernst A., 1957, Professor and Chairperson, Department of History
Matura, Realgymnasium Knittelfeld
and Vienna VII,
Ph.D., Vienna;
Dr. rer. oec., Hochschule fuer Welthandel

Brenton, Beatrice C., 1969, Associate Professor of Education and Professional Development
B.S., Wisconsin (Menominee);
M.A., Ph.D., Michigan State

Brethower, Dale, 1978, Associate Professor of Psychology
A.B., Kansas;
A.M., Harvard;
Ph.D., Michigan

Breuer, Richard D., 1959, Professor of Biology
B.A., Southern Illinois;
M.S., Ph.D., Illinois

Brogowicz, Andrew A., 1979, Assistant Professor of Marketing
B.S.B.A., M.B.A., Wayne State;
Ph.D., Michigan State

Brown, Alan S., 1955, Professor of History
B.A., M.A., Ph.D., Michigan

Brown, Charles T., 1948, Distinguished University 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, Phillip L., 1963, Associate Professor of Industrial Education
B.S., M.S., Kansas State College of Pittsburgh;
Ed.D., Missouri

Brunhummer, 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 and Chairperson, Department 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)

Burbridge, 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., Carroll;
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
B.S., Central Connecticut;
M.Ed., Ed.D., Pennsylvania State

Bush, Mary Ann, 1974, Associate Professor of Occupational Therapy
B.S., Central Michigan;
M.A., Western Michigan

Buthala, Darwin A., 1973, Professor and Chairperson, Department of Biomedical Sciences
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

Buys, William E., 1964, Professor of Communication Arts and Sciences
B.A., Albion;
Ph.M., Ph.D., Wisconsin

Byle, 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
B.A. Michigan, M.A. Western Michigan, Ph.D. Michigan State

Callan, Edward T., O.D., 1957, Professor of English
B.A. Wilwasserstand, M.A. Fordham, D. Litt. et Phil.
University of South Africa

Carey, Thomas A., 1974, Assistant Professor of Management
B.B.A. Notre Dame, M.B.A. Ed.D. Western Michigan

Carley, David O., 1961, Associate Professor of Professional Development
B.S. Michigan, M.A. Michigan State

Carley, 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. Michigan, M.A. Western Michigan, Ed.D. Michigan

Carlson, Lewis H., 1968, 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., 1956, Professor of Counseling and Personnel Administration
B.S. Ed.M. Ed.D. Illinois

Carney, John M., 1966, Associate Professor of Art

Carroll, Hardy, 1970, Associate Professor of Librarianship
B.A. Guilford, B.D. Hartford Theological Seminary, M.S.L.S. Drewel, Ph.D. Case Western Reserve

Carter, Elwyn F., 1945, Professor of Music
B.A. Alma, M.A. Ed.D. Columbia

Caruso, Phillip P., 1967, Assistant Professor of Economics
B.A., M.A., Ph.D. Michigan State

Castel, Albert E., III, 1960, Professor of History
B.A., M.A. Wichita, Ph.D. Chicago

Chandler, Ralph C., 1976, Associate Professor of Political Science
B.A. Stetson, B.D. Union Theological Seminary, M.A. Rutgers, Th.M. Princeton Theological Seminary, Ph.D. Columbia

Channell, Dwayne E., 1979, Assistant Professor of Mathematics
B.S., M.A., Ph.D. Ohio State

Chaplin, David, 1972, Professor and Chairperson, Department of Sociology
B.A. Amherst, M.A. Ph.D. Princeton

Chartrand, Gary, 1964, Professor of Mathematics
B.S., M.S., Ph.D. Michigan State

Chase, Ronald B., 1973, Associate Professor of Geology
B.A., DePauw, M.S., Ph.D. Montana

Cheatham, Billye Ann, 1967, Professor of Health, Physical Education, and Recreation
B.S. Oklahoma College for Women, M.S. Smith, Ph.D. Texas Women's

Clark, Michael J., 1971, Associate Professor of Speech Pathology and Audiology
A.B. Oberlin, M.A. Ph.D. Michigan

Clark, Samuel I., 1948, Director of Honors College and Professor of Political Science
B.A. Ph.D. Chicago

Clarke, A. Bruce, 1967, Dean, College of Arts and Sciences, and Professor of Mathematics
B.A. Saskatchewan, M.S., Ph.D. Brown

Coates, Sue S., 1975, Professor and Chairperson, Department of Home Economics
B.S., Washington, M.Ed., Ed.D. Missouri

Cole, Roger L., 1959, Professor and Chairperson, Department of Modern and Classical Languages
B.A., M.A. Ph.D. Michigan

Combs, William W., 1962, Professor of English
B.A. Mississippi, M.A., Ph.D. Harvard

Cooke, Dean W., 1966, Professor of Chemistry
B.S. Ph.D. Ohio State

Cooley, John, 1968, Associate Professor of English
B.A., M.A. Syracuse, Ph.D. Massachusetts

Cooney, Seamus, 1972, Associate Professor of History
B.A. University College (Dublin), M.A., Indiana, Ph.D. California (Berkeley)

Cooper, Richard, 1977, Assistant Professor of Occupational Therapy
B.S., M.O.T. Western Michigan

Cowles, John A., 1959, Professor of Economics
B.S., M.S., Ph.D. Wisconsin

Cordier, Sherwood S., 1956, Professor of History
B.A. Juniata, M.A., Yale, Ph.D. Minnesota

Cornish, Wendy L., 1957, Associate Professor and Chairperson, Department of Dance
B.S. University of Michigan, M.A. Western Michigan University

Cottrah, Tilman C., 1972, Professor of Sociology
B.A., A.M. & N. College, M.A., Indiana, Ph.D. Chicago

Cowan, David P., 1979, Assistant Professor of Biology
B.S., M.S., Ph.D. Michigan

Cowden, David J., 1969, Assistant Professor of Education and Professional Development
B.S., M.S. Northern State, Ed.D., South Dakota

Crane, Loren D., 1965, Associate Professor of Communication Arts and Sciences
B.A., Brigham Young, M.A., Ph.D. Ohio State

Cremin, William M., 1975, Assistant Professor of Anthropology
B.S., M.A. Northern Illinois, Ph.D., Southern Illinois

Crow, Lowell E., 1974, Associate Professor of Marketing
B.S. Purdue, M.B.A., D.B.A., Indiana

Curl, David H., 1966, Professor of Education and Professional Development
B.F.A. Ohio, M.S., Ed.D., Indiana

Curtis, Alan, 1979, Assistant Professor of Business Education and Administrative Services
B.A., M.E., Boston, Ph.D. Connecticut School of Education

Curtis-Smith, Curtis, 1968, Associate Professor of Music
B.M., M.M., Northwestern

Custen, George F., 1979, Assistant Professor of Communication Arts and Sciences
B.A., S.U.N.Y., M.A., Ph.D., Pennsylvania

Cutbirth, Nancy, 1971, Assistant Professor of English
B.A. Stanford, M.A., Ph.D. Texas
Dahlberg, Kenneth A., 1966, Associate Professor of Political Science
  B.A., Northwestern; M.A., Stanford; Ph.D., Colorado

Dahneke, Gordon L., 1979, Assistant Professor of Communication Arts and Sciences
  A.B., Calvin; M.A., Ph.D., Michigan State

Dales, George G., 1953, Professor of Health, Physical Education, and Recreation
  B.S., Miami; M.A., Michigan

Dannenberg, Raymond A., 1956, Professor and Chairperson, Department of Distributive Education
  B.S., Western Michigan; M.A., Ph.D., Michigan

Darling, Dennis E., 1967, Associate Professor of Industrial Education
  B.S., Stout State; M.A., Ball State; Ph.D., Michigan State

Davenport, James A., 1957, Associate Professor of Educational Leadership
  B.A., M.A., Western Michigan; Ed.D., Columbia

Davey, John R., 1979, Assistant Professor of Biology
  B.S., M.S., U. of California; Ph.D., Northern Arizona

Davidson, Clifford O., 1965, Professor of English
  B.S., St. Cloud State; M.A., Ph.D., Wayne State

Davis, Charles, 1961, Professor of Electrical Engineering
  B.S.E.E., Michigan State; M.S.E.E., Michigan; Ph.D., Michigan State; P.E.

Davis, Robert S., 1965, Associate Professor of English
  B.A., Indiana; M.A., Ph.D., Claremont

Davis, Ronald W., 1966, Associate Professor of History
  B.A., Bowling Green State; M.A., Ph.D., Indiana

Davis, Ruth M., 1961, Professor of Health, Physical Education, and Recreation
  B.S., M.Ed., Bowling Green State; Ph.D., Ohio State

Day, Robert B., 1965, Professor of Mechanical Engineering
  B.S., M.Sc. (Met.C), Cincinnati; D.Sc. (Met.E.), Colorado School of Mines; P.E.

Delene, Linda M., 1977, Associate Professor of Marketing
  B.A., M.B.A., University of Michigan; Ph.D., University of Toledo

DeLuca, Joseph V., 1966, Professor of Art
  B.S., M.A., Bowling Green; M.F.A., Michigan State

Demetrakopoulos, Stephanie Fisher, 1971, Associate Professor of English
  B.S., Portland State; M.A., Ph.D., Minnesota

Dennenfeld, Philip S., 1956, Associate Vice President for Academic Affairs and Professor of English
  B.A., Wayne State; M.A., Ph.D., Northwestern

Derby, Stanley K., 1955, Professor of Physics
  B.S., Chicago; M.S., Ph.D., Michigan

DeYoung, Ronald C., 1970, Assistant Dean, College of Business, and Associate Professor of Business Education and Administrative Services
  B.S., M.A., Western Michigan; Ed.D., Northern Illinois

Dickason, David G., 1966, Associate Professor of Geography
  B.A., Wooster; M.A., Pittsburgh; Ph.D., Indiana

Dickie, Kenneth E., 1967, Professor of Education and Professional Development
  B.S., M.S., Stout State; Ed.D., Indiana

Dieker, Richard J., 1966, Professor and Chairperson, Department of Communication Arts and Sciences
  B.S., M.S., Emporia State; Ph.D., Michigan State

Dilworth, John, 1968, Associate Professor of Philosophy
  B.A., Ph.D., Bristol

Dooley, Howard J., 1970, Associate Professor of Humanities
  B.A., M.A., Ph.D., Notre Dame

Dotson, Allen C., 1964, Associate Professor of Physics
  B.S., Wake Forest; Ph.D., North Carolina

Douma, Rollin G., 1970, Associate Dean, The Graduate College, and Associate Professor of English
  B.A., M.A., Ph.D., Michigan

DuBien, Janice L., 1977, Assistant Professor of Mathematics
  B.S., Illinois State; M.S., Ph.D., Oklahoma State

Dull, Elizabeth H., 1970, Associate Professor of Art
  B.F.A., North Carolina; Ph.D., Northwestern

Dwarkesh, D.P.S., 1968, Associate Professor of Linguistics
  M.A. (Hindi), M.A. (Sanskrit), Agra (India); M.A (Linguistics), Calcutta (India); Ph.D., Chicago

Dybek, Stuart, 1973, Assistant Professor of English
  B.S., M.A., Loyola; M.F.A., Iowa

Dykstra, Sid, 1964, Associate Dean, The Graduate College, and Associate Professor of Educational Leadership
  B.A., Calvin; M.A., Ph.D., Michigan

Earhart, H. Byron, 1966, Professor of Religion
  B.D., M.A., Ph.D., Chicago

Ebling, Benjamin, 1965, Professor of French
  B.A., Western Michigan; M.A., Michigan; Ph.D., Ohio State

Ede, David, 1970, Assistant Professor of Religion
  B.A., St. Olaf; B.D., Luther Theological Seminary; Ph.D., McGill University

Edwards, Adrian C., 1964, Professor of General Business
  B. Comm., St. Francis Xavier; M.B.A., Detroit; Ph.D., Ohio State

Edwards, Sandra, 1975, Assistant Professor of Occupational Therapy
  B.S., Florida; M.A., Western Michigan

Eenigenburg, Paul J., 1969, Associate Professor of Mathematics
  B.A., Hope; M.A., Kansas; Ph.D., Kentucky

Eichenlaub, Val L., 1962, Associate Professor of Geography
  B.A., Western Michigan; M.A., Michigan; Ph.D., Ohio State

Eisenbach, Joseph J., 1961, Professor and Chairperson, Department of Special Education
  B.S.B.A., Kansas State Teachers; M.S., Kansas State; Ed.D., Wayne State

Eisenberg, Robert C., 1967, Associate Professor of Biomedical Sciences
  B.S., Northwest Missouri State; M.S., Ph.D., North Carolina State

Elder, E. Rozanne, 1968, Director, Institute of Cistercian Studies, and Adjunct Assistant Professor of History
  B.A., M.A., Western Michigan; Ph.D., Toronto
Ellin, Joseph S., 1962, Professor of Philosophy  
B.A., Columbia;  
M.A., Ph.D., Yale

Elsasser, Edward O., 1955, Professor of History  
B.A., Bethany (W.Va.);  
M.A., Clark;  
Ph.D., Chicago

Engemann, Joseph G., 1960, Associate Professor of Biology  
B.A., Aquinas;  
M.S., Ph.D., Michigan State

Engstrom, Robert H., 1959, Professor of Art  
B.A., M.A., Michigan State

Erhart, Rainer R., 1965, Associate Professor of Geography  
B.A., Eastern Michigan;  
M.A., Ph.D., Illinois

Erickson, Edsel L., 1965, Professor of Speech Pathology and Audiology  
B.A., North Park College;  
M.A., Ed.D., Michigan State

Erickson, James E., 1977, Assistant Professor of Biology  
B.A., North Park College;  
M.S., Ph.D., Minnesota

Erickson, Robert L., 1963, Professor and Chairperson, Department of Speech Pathology and Audiology  
B.A., Omaha;  
M.A., Nebraska;  
Ph.D., Iowa

Eriksen, Gordon G., 1977, Assistant Professor of Librarianship  
B.A., Oklahoma;  
M.A., Ph.D., Colorado;  
M.S.L.S., Illinois

Everett, Frederick, 1960, Professor of Accountancy  
B.A., Northern Iowa;  
M.A., Iowa;  
CPA, State of Iowa

Falk, Arthur E., 1964, Professor of Philosophy  
B.A., Fordham;  
M.A., Ph.D., Yale

Falk, Nancy E., 1969, Professor of Religion  
B.A., Cedar Crest;  
M.A., Ph.D., Chicago

Farris, Howard E., 1967, Professor of Psychology  
B.A., M.A., Western Michigan;  
Ph.D., Michigan State

Feirer, John L., 1940, Professor and Chairperson, Department of Industrial Education  
B.S., Stout State;  
M.A., Minnesota;  
Ed.D., Oklahoma

Felkel, Robert W., 1971, Associate Professor of Spanish  
B.S., M.A., Boston College;  
Ph.D., Michigan State

Fialkow, Lawrence A., 1973, Associate Professor of Mathematics  
B.A., Brandeis;  
Ph.D., Michigan

Ficsor, Gyula, 1967, Associate Professor of Biomedical Sciences  
B.S., Colorado State;  
Ph.D., Missouri

Fisher, John M., 1969, Associate Professor of Paper Science and Engineering  
B.S., Louisiana State;  
B.S., Purdue University;  
M.S., Western Michigan;  
P.E.

Fisk, Franklin G., 1969, Professor of Natural Science and Education and Professional Development  
B.S., Central Michigan;  
M.A., Ed.D., Michigan State

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

Flynn, John P., 1970, Director and Professor, School of Social Work  
B.A., M.S.W., Michigan;  
Ph.D., Denver

Foote, J. Lindsley, 1965, Professor of Chemistry  
B.S., Miami;  
Ph.D., Case Institute of Technology

Foster, Linda Lesniak, 1978, Assistant Professor of Mathematics  
B.A., M.A., Ph.D., Western Michigan

Fowler, Dona J., 1965, Professor of Biology  
B.S., M.S., Ph.D., Purdue

Frattalone, Joseph A., 1965, Associate Professor of Art  
B.A., Cincinnati;  
M.A., Miami;  
Ed.D., Indiana

Freeman, Caryl P., 1970, Associate Professor of Business Education and Administrative Services  
B.A., Michigan State;  
M.A.T., Harvard/Radcliffe;  
Ed.D., New York

Friday, Paul C., 1972, Associate Professor of Sociology  
B.A., Drew;  
M.A., Ph.D., Wisconsin

Friedman, Stephen B., 1966, Professor of Biomedical Sciences  
B.A., Rochester;  
M.S., Syracuse;  
Ph.D., Illinois

Fuqua, R. Wayne, 1977, Assistant Professor of Psychology  
B.A., M.A., Ph.D., Florida

Galligan, Edward L., 1958, Professor of English  
B.A., Swarthmore;  
M.A., Columbia;  
Ph.D., Pennsylvania

Gamble, Clara L., 1966, Professor of Dance  
B.S., Alabama College;  
M.A., UNC-Chapel Hill

Gardiner, Jeffrey B., 1970, Assistant Professor of German  
B.A., Stanford;  
M.A., Ph.D., Colorado

Gardner, Wayland D., 1964, Professor of Economics  
B.A., Doane;  
M.S., Ph.D., Wisconsin

Garland, Elizabeth B., 1964, 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

Gianakaris, Constantine J., 1966, Associate Dean, College of Arts and Sciences, and Professor of English  
B.A., M.A., Michigan;  
Ph.D., Wisconsin

Gingerich, Martin E., 1968, Associate Professor of English  
B.S., Shenepsburg State;  
M.A., Maine;  
Ph.D., Ohio

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  
B.A., Connecticut;  
M.A., Ph.D., Missouri
Glenn, Michael, 1976, Assistant Professor of Business Education and Administrative Services
B.A., M.A., Ed.D., Western Michigan

Goldfarb, Clare R., 1961, Chairperson and Professor, Department of English
B.A., 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., Michigan State

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, Professor of Geology
B.A., Denison; M.S., Pennsylvania State; Ph.D., Leed's

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

Griffeth, 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
B.A., M.A., Seton Hall; Diploma de Estudios Hispanicos, University of Zaragoza; Ph.D., Ohio State

Grotzinger, Laurel Ann, 1964, Dean and Chief Research Officer, The Graduate College, and Professor of Librarianship
B.A., Carleton; M.S., Ph.D., Illinois

Groulx, Roy W., 1957, Professor of Industrial Engineering
B.A., M.A., Ph.D., Michigan State; P.E.

Gründler, Otto, 1961, Director, Medieval Institute, and Professor of Religion
ABITUR, Gymnasium Nordhorn (Germany); B.D., Western Theological Seminary; Th.D., Princeton Theological Seminary

Guise, Benjamin, 1978, Assistant Professor of Librarianship
B.S., M.S.L.S., East Texas State; Ed.D., North Texas State

Hahnenberg, Willard, 1957, Associate Professor of Music
B.A., M.A., Western Michigan

Hahn, Robert J., 1961, Associate Professor of History
B.A., Miami; M.A., Ph.D., Ohio State

Hamelink, Jerry H., 1968, Associate Professor of Mechanical Engineering
B.S., M.S., Michigan Technological; Ed.D., West Virginia; P.E.

Hammond, J. David, 1978, Assistant Professor of Computer Science
B.S., Purdue; M.S., Michigan State; M.S., Ph.D., Chicago

Hamner, H. Nicholas, 1956, Professor of History
B.A., M.A., Emory; Ph.D., Ohio State

Hannah, Robert W., 1970, Vice President for Government Relations and Assistant Professor of History
B.A., Yale; M.A.T., Harvard; Ph.D., Michigan State

Hannah, Susan, 1972, Assistant Dean, College of Arts and Sciences, and Adjunct Assistant Professor of Political Science
B.A., Agnes Scott College; M.A.T., Harvard; Ph.D., Michigan State

Hartmann, Otto, 1961, Professor of Mathematics
B.S., Washington State; Ph.D., Wayne State

Harra, Richard L., 1968, Professor of Education and Professional Development
B.S., M.A., Eastern Michigan; Ed.D., Indiana

Harris, Barbara L., 1975, Assistant Professor of Special Education
B.A., M.Ed., Florida; Ph.D., Wayne State

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

Heinig, Edward J., 1968, Professor of Education and Professional Development
B.A., Indiana State; M.A., Ph.D., Michigan

Heinig, Ruth B., 1977, Associate Professor of Communication Arts and Sciences
B.A., Valparaiso; M.A., Ph.D., Pittsburgh

Helgesen, 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

Helweg, Arthur Wesley, 1979, Associate Professor of Social Science
B.A., Miami; M.A., Ph.D., Michigan State

Hendriksen, Daniel P., 1966, Associate Professor of Linguistics
B.A., Calvin; M.A. (Ed.), M.A. (Linguistics), Ph.D., Michigan

Herman, John E., 1966, Associate Professor of Computer Science
B.S.E.E., M.S.E.E., Ph.D., Michigan

Hess, Alexander, 1963, Professor and Chairperson, Department of Electrical Engineering
B.S.E.E., M.S.E.E., Ph.D., (E.E.), Illinois; P.E.
<table>
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<tr>
<th>Name</th>
<th>Year</th>
<th>Position</th>
<th>Education</th>
</tr>
</thead>
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<tr>
<td>Jones, Darrell G.</td>
<td>1962</td>
<td>Dean, College of Business, and Professor of Business Education and Administrative Services</td>
<td>B.S., M.A., Northern Iowa; Ph.D., Michigan State</td>
</tr>
<tr>
<td>Jones, Lethonee A.</td>
<td>1976</td>
<td>Assistant Professor of Social Work</td>
<td>A.B., Western College; M.S.W., Illinois; Ph.D., Antioch</td>
</tr>
<tr>
<td>Jones, Stephen G.</td>
<td>1972</td>
<td>Assistant Professor of Music</td>
<td>B.S., Ohio State; M.M., Wichita State; D.M.A., Michigan</td>
</tr>
<tr>
<td>Junker, Louis J.</td>
<td>1961</td>
<td>Professor of Economics</td>
<td>B.A., Denver; M.A., Connecticut; Ph.D., Wisconsin</td>
</tr>
<tr>
<td>Kaafer, Ruth</td>
<td>1963</td>
<td>Professor of Blind Rehabilitation</td>
<td>B.A., M.S.W., Wayne State; Ph.D., Michigan</td>
</tr>
<tr>
<td>Kanaan, Adli S.</td>
<td>1965</td>
<td>Professor of Chemistry</td>
<td>B.S., Arts and Sciences College (Baghdad); M.S., Colorado State; Ph.D., Wisconsin</td>
</tr>
<tr>
<td>Kanzier, William H.</td>
<td>1961</td>
<td>Professor of Education and Professional Development</td>
<td>B.S., U.S. Naval Academy; M.A., Columbia; Ed.D., Wayne State</td>
</tr>
<tr>
<td>Kapoor, S. F.</td>
<td>1967</td>
<td>Associate Professor of Mathematics</td>
<td>B.S., M.S., B.L., Bombay; Ph.D., Michigan State</td>
</tr>
<tr>
<td>Karsten, David</td>
<td>1967</td>
<td>Associate Professor of Theatre</td>
<td>B.A., Hope; M.A., Northwestern; Ph.D., Michigan State</td>
</tr>
<tr>
<td>Kaufman, Maynard L.</td>
<td>1963</td>
<td>Associate Professor of Religion</td>
<td>B.A., Bethel; M.A., Ph.D., Chicago</td>
</tr>
<tr>
<td>Kaufman, Robert W.</td>
<td>1959</td>
<td>Professor of Political Science, Director of Institute of Public Affairs, and Director of Environmental Studies</td>
<td>B.S., Wisconsin; M.A., Ph.D., American</td>
</tr>
<tr>
<td>Kaul, R. Dean</td>
<td>1967</td>
<td>Associate Professor of Physics</td>
<td>B.S., Ph.D., Case Institute of Technology</td>
</tr>
<tr>
<td>Keaveny, Richard</td>
<td>1968</td>
<td>Associate Professor of Art</td>
<td>B.S., Massachusetts College of Art; M.F.A., Rhode Island School of Design</td>
</tr>
<tr>
<td>Keenan, J. Michael</td>
<td>1962</td>
<td>Professor of Management</td>
<td>B.A., M.S., Colorado; Ph.D., Ohio State</td>
</tr>
<tr>
<td>Kent, Neil D.</td>
<td>1965</td>
<td>Professor of Psychology</td>
<td>B.A., M.A., Baylor; Ph.D., Indiana</td>
</tr>
<tr>
<td>Kerstetter, Mark C.</td>
<td>1977</td>
<td>Assistant Professor of Computer Science</td>
<td>B.A., LaSalle; M.S., Johns Hopkins; Ph.D., Northwestern</td>
</tr>
<tr>
<td>Kilty, Ted K.</td>
<td>1968</td>
<td>Associate Professor of Education and Professional Development</td>
<td>B.A., M.A., Andrews; Ph.D., Michigan</td>
</tr>
<tr>
<td>King, C. I. Eugene</td>
<td>1961</td>
<td>Professor of Political Science</td>
<td>B.A., King; M.A., Vanderbilt; Ph.D., Stanford</td>
</tr>
<tr>
<td>King, Donald E.</td>
<td>1966</td>
<td>Associate Professor of Art</td>
<td>B.A., California College of Arts and Crafts; M.F.A., Mills</td>
</tr>
<tr>
<td>Kirchherr, Eugene C.</td>
<td>1957</td>
<td>Professor of Geography</td>
<td>B.Ed., Chicago State; M.S., Ph.D., Northwestern</td>
</tr>
<tr>
<td>Kissel, Johannes A.</td>
<td>1968</td>
<td>Associate Professor of German</td>
<td>B.A., Mercier; M.A., Ph.D., Michigan State</td>
</tr>
<tr>
<td>Klei, George</td>
<td>1958</td>
<td>Professor of Political Science</td>
<td>B.A., M.A., Ph.D., Illinois</td>
</tr>
<tr>
<td>Kline, James E.</td>
<td>1963</td>
<td>Associate Professor of Paper Science and Engineering</td>
<td>B.S., M.S., Western Michigan</td>
</tr>
<tr>
<td>Kobrak, Peter</td>
<td>1973</td>
<td>Associate Professor of Political Science and Director of Center for Public Administration Programs</td>
<td>B.A., Oberlin; M.S., Wisconsin; M.A., Yale; Ph.D., Johns Hopkins</td>
</tr>
<tr>
<td>Koronakos, Chris</td>
<td>1960</td>
<td>Professor of Psychology</td>
<td>B.A., Colorado; M.A., Ph.D., Nebraska</td>
</tr>
<tr>
<td>Kountanis, Dionysios I.</td>
<td>1978</td>
<td>Assistant Professor of Computer Science</td>
<td>B.A., Athens; M.S., Ph.D., Pennsylvania</td>
</tr>
<tr>
<td>Kramer, Philip H.</td>
<td>1970</td>
<td>Professor of Social Work and Ombudsman</td>
<td>B.A., Brooklyn; M.S.W., Columbia; Ph.D., Brandeis</td>
</tr>
<tr>
<td>Kramer, Ronald C.</td>
<td>1978</td>
<td>Assistant Professor of Sociology</td>
<td>B.E., Toledo; M.A., Ph.D., Ohio State</td>
</tr>
<tr>
<td>Krawutschke, Peter W.</td>
<td>1967</td>
<td>Associate Professor of German ABITUR, Gelehrengymnasium Karlsruhe (Germany); B.A., M.A., Western Michigan; Ph.D., Michigan</td>
<td></td>
</tr>
<tr>
<td>Kripalani, Gangaram K.</td>
<td>1968</td>
<td>Professor of Economics</td>
<td>M.S., Bombay; M.S., Ph.D., North Carolina State; F.I.A., Institute of Actuaries (London)</td>
</tr>
<tr>
<td>Kyser, Daniel A.</td>
<td>1947</td>
<td>Professor of Music</td>
<td>B.S.M., Oberlin; M M E., Michigan</td>
</tr>
<tr>
<td>LaDuke, Robert O.</td>
<td>1966</td>
<td>Associate Professor of Blind Rehabilitation</td>
<td>B.A., M.A., Western Michigan; Ed.D., Northern Colorado</td>
</tr>
<tr>
<td>Laing, Robert A.</td>
<td>1970</td>
<td>Associate Professor of Mathematics</td>
<td>B.S., Indiana State of Pennsylvania; M.A., Kent State; Ph.D., Ohio State</td>
</tr>
<tr>
<td>Lambe, Cameron W.</td>
<td>1962</td>
<td>Professor of Education and Professional Development</td>
<td>B.S., M.Ed., Ed.D., Wayne State</td>
</tr>
<tr>
<td>Lamper, Neil</td>
<td>1959</td>
<td>Associate Professor of Counseling and Personnel</td>
<td>B.A., Calvin; M.A., Michigan; Ph.D., Michigan State</td>
</tr>
<tr>
<td>Laudeman, Max A.</td>
<td>1975</td>
<td>Assistant Professor of Accountancy</td>
<td>B.A., Manchester; M.B.A., Arkansas; Ph.D., University of Arkansas; C.M.A., C P A, Indiana</td>
</tr>
<tr>
<td>Lawson, E. Thomas</td>
<td>1961</td>
<td>Professor and Chairperson, Department of Religion</td>
<td>B.D., M.A., Ph.D., Chicago</td>
</tr>
<tr>
<td>Leja, Stanislaw</td>
<td>1957</td>
<td>Professor of Mathematics</td>
<td>M.A., Lwow; Ph.D., Cornell</td>
</tr>
</tbody>
</table>
Lewis, Alice E., 1956, Associate Professor of Occupational Therapy
B.A., Mount Holyoke;
M.A., Southern California;
O.T. Certificate, Western Michigan

Lewis, David M., 1962, Professor of Sociology
B.A., M.A., Maryland;
Ph.D., Michigan State

Lewis, Helenan S., 1963, Associate Professor of Political Science
B.A., M.A., Ph.D., Michigan State

Lick, Don Raymond, 1965, Professor of Mathematics
B.S., M.S., Ph.D., Michigan State

Lindbeck, John R., 1957, Professor of Industrial Education
B.S., M.A., Ph.D., Minnesota

Lindquist, Jay D., 1973, Associate Professor of Marketing
B.S., U.S. Naval Academy, M.S.E., M.B.A., Ph.D., Michigan

Lish, Raymond A., 1977, Associate Professor of Social Work
B.S., Brigham Young;
M.A., Ph.D., Chicago

Lloyd, Bruce A., 1967, Professor of Education and Professional Development
B.S., M.Ed., Ph.D., Ohio

Loeffler, Erika, 1971, Associate Professor of Anthropology
B.A., Vienna;
Ph.D., Mainz

Loeffler, Reinhold L., 1967, Associate Professor of Anthropology
B.A., Innsbruck Teacher Training College;
Ph.D., Mainz

Loew, Cornelius, 1956, University Professor
B.A., Emhurst;
B.D., S.T.M., Union Seminary;
Ph.D., Columbia

Lohr, Frances E., 1968, Associate Professor of Speech Pathology and Audiology
B.A., Michigan State;
M.A., Northwestern;
Ph.D., Michigan

Long, Brian G., 1975, Assistant Professor of Marketing
B.S., M.B.A., Central Michigan;
Ph.D., Michigan State

Long, Joetta, 1977, Assistant Professor of Psychology
B.A., Miami (Florida);
M.S., Ph.D., Florida State

Lowrie, Jean E., 1951, Professor and Director, School of Librarianship
B.A., Keuka;
B.S.L.S., Western Reserve;
M.A., Western Michigan;
Ph.D., Western Reserve;
D.Litt., Keuka

Lowry, George G., 1968, Professor of Chemistry
B.A., Chico State;
M.S., Stanford;
Ph.D., Michigan State

Luken, Shirley Ann, 1972, Assistant Professor of Occupational Therapy
B.S., Wisconsin;
M.Ed., Illinois

Luqman, Mushtaq, 1977, Assistant Professor of Marketing
B.A., Karachi;
B.S., Indiana Institute of Technology;
M.B.A., Ph.D., Michigan State

Lyons, David O., 1963, Professor and Chairperson, Department of Psychology
B.A., Hamilton;
Ph.D., Indiana

MacDonald, Richard R., 1967, Assistant Professor of Sociology
B.A., Michigan State;
M.A., Ph.D., Missouri

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
B.S., M.A., New York State;
Ph.D., Michigan

Mallinson, Jacqueline, 1967, Adjunct Associate Professor of Science Education
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

Marietta, E. L., 1962, Professor of Business Education and Administrative Services
B.Ed., Southern Illinois;
M.A., Ph.D., Iowa

Markle, Gerald E., 1971, Associate Professor of Sociology
B.A., M.A., Wayne State;
M.A., Ph.D., Florida State

Marks, Barbara D., 1978, Associate Dean of College of Health and Human Services
B.S., Georgetown;
M.Ed., Ph.D., Miami (Florida)

Mascolini, Marcia V., 1977, Assistant Professor of Business Education and Administrative Services
B.A., Misericordia;
M.A., Ph.D., Loyola

Matthews, James B., 1978, Professor and Chairperson, Department of Mechanical Engineering
B.S., Rose-Hulman;
M.S., Massachusetts Institute of Technology;
Ph.D., Arizona; P.E.

Mazer, Gilbert K., 1965, Professor of Counseling and Personnel
B.A., Michigan;
M.A., Western Reserve;
Ph.D., Arizona State

McAnaw, Richard L., 1964, Professor of Political Science
B.S., State Teachers College (Missouri);
M.A., Missouri;
Ph.D., Iowa

McCarty, James F., 1975, Associate Professor of Music
B.M., Wisconsin;
M.A., San Jose State;
Ph.D., Michigan State

McCarty, F. William, 1970, Associate Professor of General Business
B.A., DePauw;
J.D., Michigan

McCaville, Michael E., 1968, Associate Professor of Chemistry
B.S., Loras College;
Ph.D., Iowa State

McCully, Joseph C., 1956, Professor of Mathematics
B.A., Western Michigan;
M.A., Ph.D., Michigan

McGinnis, Dorothy J., 1941, Professor of Education and Professional Development
B.S., Western Michigan;
M.A., Ohio State;
Ph.D., Michigan State

Mcnittire, Cecil L., 1976, Assistant Professor of Biomedical Sciences
B.S., Creighton;
M.A., Ph.D., Wayne State

McKean, Joseph W., 1978, Assistant Professor of Mathematics
B.S., Geneva;
M.S., Arizona;
Ph.D., Penn State

McKinney, Eleanor R., 1967, Associate Professor of Librarianship
B.S., Trenton State;
M.A., PhD, Wayne State

McKendree, Max O., 1964, Professor of Business Education and Administrative Services
B.S., Western Michigan;
M.A., Western Reserve;
Ed.D., Florida State
Meagher, Jack R., 1949, Director of Computer Center and Professor of Computer Science and Mathematics
B.A., Western Michigan;
M.A., Michigan

Mendenhall, J. Stanley, 1979, Assistant Professor of Management
B.B.A., Southwestern;
M.B.A., Texas Christian.
Ph.D., Wisconsin

Meretta, Leonard V., 1945, Professor of Music
B.M., M.M., Michigan

Methaney, John M., III, 1964, Associate Professor of Art

Meyer, Charles E., 1966, Professor of Art
B.F.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

Mills, Eugene G., 1977, Instructor of Dance
B.S., North Texas State University;
M.F.A., Southern Methodist University

Moore, Daniel I., 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

Mortimore, Fredric J., 1967, Associate Professor of Social Science (Arts and Sciences) and Associate Director, Center for Public Administration Programs
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
Ph.D., Technion-Israel Institute of Technology

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

Murphy, Marcy, 1977, Associate Professor of Librarianship
B.A., Colorado;
M.A., Denver;
Ph.D., Pittsburgh

Nagler, Robert C., 1956, Professor and Chairperson, Department 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 Mechanical Engineering
B.S., M.S., Stout State;
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 of Accountancy
B.B.A., M.B.A., Western Michigan;
Ph.D., Michigan State;
C.M.A

Newson, Roosevelt, 1978, Instructor of Music
B.M., Southern Louisiana;
M.M., D.M.A., Peabody Conservatory

Nichols, Nathan L., 1955, Professor of Physics
B.A., Western Michigan;
M.S., Michigan;
Ph.D., Michigan State

Nicolaou, Abraham W., 1970, Associate Professor of Special Education
B.A., M.A., Ph.D., Michigan

Niemi, Leo, 1955, Professor and Chairperson, Department of Business Education and Administrative Services
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, Associate Professor of Communication Arts and Sciences
B.A., M.A., Michigan State;
Ph.D., Denver

Olton, Roy, 1957, Professor of Political Science
B.A., Ohio Wesleyan;
M.A., Ph.D., Fletcher School of Law and Diplomacy

Oppilger, Larry, 1963, Professor and Chairperson, Department of Physics
B.S., School of Mines and Metallurgy (Missouri);
M.S., Ph.D., Wisconsin

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, Professor of Counseling and Personnel
B.A., Temple;
M.S., Ph.D., North Texas State
Ottesen, 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

Peterson, Maija, 1975, Associate Professor of Psychology

Peterson, John W., 1966, Professor of Psychology
B.S., Wayne State
M.S., Wisconsin
Ph.D., Illinois

Peterson, Dayid K., 1969, Associate Professor of Sociology

Peterson, Norman, 1971, Professor of History
B.A., Western Michigan
M.A., Ph.D., Indiana

Payne, Michael R., 1976, Assistant Professor of Economics
B.S., Missouri (St. Louis)
M.A., Ph.D., Syracuse

Patterson, James C., 1974, Assistant Professor of Sociology
B.A., M.A., Northern Iowa
Ph.D., Iowa

Patterson, David K., 1977, Associate Professor of Paper Science and Engineering
B.S., Michigan
M.S., Ph.D., Denver

Pattison, Dale P., 1963, Associate Professor of History
B.A., Western Michigan
M.A., Ph.D., Chicago

Payne, Edward J., 1978, Professor of Social Work
B.A., Detroit
M.S.W., Wayne State
Ph.D., Michigan

Payne, Michael R., 1976, Assistant Professor of Economics
B.S., Missouri (St. Louis)
M.A., Ph.D., Syracuse

Petersen, James C., 1974, Assistant Professor of Sociology
B.A., M.A., Northern Iowa
Ph.D., Iowa

Peterson, David K., 1977, Associate Professor of Paper Science and Engineering
B.S., Michigan
M.S., Ph.D., Denver

Peterson, Norman, 1979, Assistant Professor of Psychology
B.A., Grand Valley State
M.A., Ph.D., Western Michigan

Peterson, Majia, 1979, Associate Professor of Home Economics
B.S., Stout State
M.S., Wisconsin
Ph.D., Ohio State

Petro, John W., 1961, Professor of Mathematics
B.A., M.S., Ph.D., Iowa

Petty, Nancy E., 1979, Assistant Professor of Psychology
B.S., Winfield
M.Ed., M.A., Ph.D., North Texas

Phillips, Claude S., Jr., 1957, Professor of Political Science
B.A., M.A., Tennessee
Ph.D., Duke

Pippen, Richard W., 1963, Professor and Chairperson, Department of Biology
B.S., Eastern Illinois
M.A., Ph.D., Michigan

Pianisi, Robert J., 1976, Assistant Professor of Management
B.S., M.Ed., Ph.D., Kent State

Plano, Jack C., 1952, Professor and Chairperson, Department of Political Science
B.A., Ripon
M.A., Ph.D., Wisconsin

Poche, Cheryl E., 1975, Assistant Professor of Psychology
B.A., St. John's University
M.A., Wisconsin

Poling, Alan, 1979, Assistant Professor of Psychology
B.A., Alderson-Broaddus
M.A., West Virginia
Ph.D., Minnesota

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 and Chairperson, Department 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

Quandt, Eldor C., 1967, Associate Professor of Geography
B.A., Valparaiso
M.S., Kansas State
Ph.D., Michigan State

Quarashi, Zahir A., 1978, Assistant Professor of Marketing
B.S., Karachi
B.S., Indiana Institute of Technology
M.B.A., Ph.D., Michigan State

Ramsey, V. Jean, 1978, Assistant Professor of Management
B.S., New Mexico State
M.B.A., Ph.D., Michigan

Rappeport, Phyllis, 1966, Professor of Music
B.A., Queens
M.M., Illinois

Rauh, Henry A., 1960, Professor of Geography
B.A., Kent State
M.A., Ph.D., Illinois

Ray, Harold L., 1960, Professor and Head, 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.Ed., 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, Associate Professor of French
B.A., Georgetown
M.A., Middlebury
Ph.D., Wisconsin

Renstrom, Peter G., 1969, Associate 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

Rice, James G., Jr., 1978, Associate Professor of Librarianship
B.A., Macalester
M.L.S., Indiana
Ph.D., Missouri (Columbia)

Ricci, Robert J., 1968, Associate Professor of Music
B.A., Antioch
M.M., Yale
D.M.A., University of Cincinnati
College Conservatory of Music

Richardson, Bill K., 1977, Associate Professor of Counseling and Personnel
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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Rider, Barbara A., 1976. Professor and Chairperson, Department of Occupational Therapy
B.S., Wisconsin; M.S., Kansas

Riley, James E., 1960. Associate Professor of Mathematics
B.A., M.A., Western Michigan; Ph.D., Michigan State

Risher, Charles G., 1958. Professor of Industrial Education
B.S., Bowling Green State; M.Ed., Ed.D., Missouri

Ritchie, William A., 1964. Associate Professor of Political Science
B.A., Marshall; M.A., Ph.D., Michigan

Rizzo, John R., 1969. Professor of Management
B.A., Colorado; M.A., Ph.D., Ohio State

Rizzolo, Louis B., 1964. Professor of Art
B.S., Western Michigan; M.A., Iowa

Robert, Paul A., 1957. Professor of Art
B.A., M.A., Michigan State

Robbeck, George, 1968. Associate Professor of Communication Arts and Sciences
B.A., M.A., Pennsylvania State; Ph.D., Michigan State

Robertson, Malcolm H., 1961. Professor of Psychology
B.A., Minnesota; M.A., George Washington; Ph.D., Purdue

Roblin, Ellen P., 1970. Associate Professor of Sociology and Director of Gerontology
B.A., M.A., Ohio State; Ph.D., Purdue

Roblin, Stanley S., 1965. Professor of Sociology and Director, Center for Sociological Research
B.A., M.A., Ohio State; Ph.D., Purdue

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
B.S., M.A., Temple; Ph.D., Pennsylvania

Rossi, Ernest E., 1966. Associate Professor of Political Science
B.A., Duquesne; M.Litt., Ph.D., Pittsburgh

Rossi, Michael, 1978. Assistant Professor of Business Education and Administrative Services
A.B., Merrimack; M.A., Ph.D., Illinois

Rossman, Jules, 1966. Associate Professor of Communication Arts and Sciences
B.A., New York; M.A., Ph.D., Michigan State

Rouse, Linda, 1979. Assistant Professor of Sociology
B.S., Cornell; M.A., Adelphi; Ph.D., Florida State

Ryan, Thomas F., 1974. Professor and Chairperson, Department of Education and Professional Development
B.A., M.A., Ph.D., Michigan State

Sadler, David F., 1955. Professor of English
B.A., Antioch; M.A., Ph.D., Minnesota

Sandberg, John E., 1971. Dean and Professor, College of Education
B.S., M.A., Ed.D., Washington State

Sanders, James R., 1975. Associate Professor of Educational Leadership
B.A., M.S.Ed., Bucknell University; Ph.D., Colorado

Sanders, Margaret M., 1977. Associate Professor of Business Education and Administrative Services
B.S., Emmanuell College; Ed.M., Boston; Ph.D., Michigan State

Sanders, Neill, 1969. Professor of Music
Royal College of Music (London)

Sauck, William A., 1979. Assistant Professor of Geology
B.A., St. Olaf; M.S., Ph.D., Arizona

Schaerbeke, Frederick W., 1965. Associate Professor of Accountancy
B.S., Eastern Michigan; M.B.A., Michigan; Ph.D., Michigan State

Schmidt, Lloyd J., 1959. Professor and Chairperson, Department of Geology
B.A., Augustana; M.A., Ph.D., Missouri

Schmid, Harriet M., 1979. Assistant Professor of Occupational Therapy
B.S., Wayne State; M.A., Western Michigan; Ph.D., Ohio State

Schmidt, Christopher J., 1978. Assistant Professor of Geology
B.A., Oberlin; M.S., Ph.D., Indiana

Schmitt, Peter, 1965. Professor of History and Associate Director for Regional Historical Collections
B.A., Minnesota; M.A., Iowa; Ph.D., Minnesota

Schreiner, Erik A., 1963. Professor of Mathematics
B.A., M.A., Ph.D., Wayne State

Schwartz, Roberta C., 1978. Assistant Professor of English
B.A., Marygrove; M.A., Ph.D., Wayne State

Scott, Frank S., 1956. Professor of Industrial Education
B.S., M.S., Purdue; Ed.D., Michigan State

Scott, Herbert S., 1968. Professor of English
B.A., Fresno State; M.F.A., Iowa

Scott, Shirley C., 1970. Associate Professor of English
B.A., M.A., Ph.D., Kent State

Sebaly, A. L., 1945. Professor of Education and Professional Development and Director of Special Projects, College of Education
B.A., Western Michigan; M.A., Ph.D., Michigan

Seiler, Thomas, 1970. Associate Professor of English
B.S., Indiana State of Pennsylvania; M.A., Toledo; Ph.D., Texas (Austin)

Sellin, Donald F., 1969. Professor of Special Education
B.S., State Teachers College (Maryland); M.Ed., Ed.D., Pittsburgh

Shafer, Robert L., 1959. Associate Professor of English
B.S., Michigan; M.A., Harvard; M.A., Wisconsin; Ph.D., Michigan

Shamu, Robert E., 1967. Professor of Physics
B.S., Pennsylvania State; M.S., Ph.D., Wisconsin

Sheffer, Carol F., 1974. Associate Professor and Chairperson, Department of Educational Leadership
B.S., Bowling Green State; M.A., Ph.D., Michigan

Shekold, David A., 1966. Associate Professor of Music
B.M., M.M., Northwestern; Ph.D., Indiana

Sheppard, John D., 1965. Associate Professor of Accountancy
B.S., M.A., Ph.D., Missouri
Smith, Herbert L., 1963, Associate Professor of Sociology
B.S., M.A., Houston, Ph.D., Wisconsin

Smith, Jean O., 1965, Assistant Professor of Business Education and Administrative Services
B.S., Virginia State, M.A., New York, Ph.D., Ohio State

Smith, Robert Jack, 1963, Professor and Chairperson, Department of Anthropology
B.A., M.A., Yale, Ph.D., Pennsylvania

Smith, Robert L., 1964, Professor of Communication Arts and Sciences
B.S., M.A., Bowling Green State, Ph.D., Michigan State

Smith, Wayland P., 1975, Professor of Management
B.S., Wisconsin, M.S., Ph.D., Case Institute of Technology, P.E.

Snapper, Arthur G., 1971, Associate Professor of Psychology
B.A., Harvard, M.A., Ph.D., Columbia

Soga, Michitoshi, 1968, Professor of Physics
B.S., M.S., Gakushuin, Ph.D., Toyo

Sonnad, Subhash R., 1963, Associate Professor of Sociology
B.A., M.A., L.L.B., Bombay, Ph.D., Wisconsin

Stallman, Robert E., 1966, Associate Professor of English
B.A., M.A., New Mexico, Ph.D., Oregon

Stech, Ernest L., 1970, Associate Professor of Communication Arts and Sciences
B.A., Miami, M.A., Ph.D., Denver

Steigman, George K., 1962, Professor of Industrial Engineering
B.S., M.S., Wisconsin-Stout, Ed.D., Wayne State

Steinhaus, Nancy, 1979, Assistant Professor of Home Economics
B.S., Ohio, M.S., Purdue

Steinhaus, Ralph K., 1968, Associate Professor of Chemistry
B.S., Wheaton, Ph.D., Purdue

Stenesh, Jochanan, 1963, Professor of Chemistry
B.S., Oregon, Ph.D., California

Stettler, Robert L., 1966, Professor of Engineering
B.A., M.A., New Mexico, Ph.D., Oregon

Stillwell, Janet E., 1967, Associate Professor of Dance
B.A., M.A., (Education), M.A., (Speech), Ph.D., (Theatre), Michigan

Stillwell, LaVern, 1965, Associate Professor of Theatre
B.A., Lake Forest, M.A., Ph.D., Michigan

Stoddard, Arthur W., Jr., 1967, Associate Professor of Mathematics
B.S., M.S., Otago (New Zealand), Ph.D., Michigan

Stofoe, Michael R., 1967, Professor of Mathematics
B.A., M.A., Ph.D., Iowa

Stoltman, Joseph P., 1971, Associate Professor and Chairperson, Department of Geology
B.A., Central Washington State, M.A.T., Chicago, Ed.D., Georgia

Stone, Brice M., 1978, Assistant Professor of Economics
B.S., M.A., Clemson, Ph.D., Texas A&M

Straw, W. Thomas, 1968, Professor of Geology
B.A., M.A., Ph.D., Indiana

Stromsta, Courtney P., 1968, Professor of Speech Pathology and Audiology
B.S., Western Michigan, M.A., Ph.D., Ohio State

Stroup, John H., 1965, Professor of English
B.A., Grinnell, Ph.D., Rochester

Stufflebeam, Daniel L., 1973, Professor of Educational Leadership
B.A., B.A., M.E., Iowa, M.S., Ph.D., Purdue

Suddendorf, Richard, 1979, Professor of Music
B.S., Cincinnati, M.S., Illinois

Sundick, Robert L., 1969, Associate Professor of Anthropology
B.A., New York (Buffalo), M.A., Ph.D., Toronto
Sung, Kyu-taik, 1978, Assistant Professor of Social Work
B.A., M.A., Seoul National; M.S.W., Ph.D., Michigan

Suterko, Stanley, 1961, Assistant Professor of French
B.A., M.S., California State; Ed.D., Utah State

Swenson, Daniel, 1979, Assistant Professor of Business Education and Administrative Services
B.S., M.S., Western Michigan

Teichert, Herbert Uwe, 1972, Associate Professor of English
B.A., M.A., Ph.D., Michigan

Teichert, Herbert Uwe, 1972, Associate Professor of Political Science
B.A., M.A., Ph.D., Wisconsin

Teichert, Herbert Uwe, 1972, Associate Professor of Social Work
B.A., M.A., Ph.D., Michigan

Teichert, Herbert Uwe, 1972, Associate Professor of Management
B.A., M.A., Ph.D., Wisconsin

Tessin, Melvin J., 1974, Adjunct Professor of Humanities
B.A., Calvin; M.A., Ph.D., Ohio

Tong, Donald D.M., 1979, Assistant Professor of Management
B.A., Oregon; M.S., Ph.D., Case Western Reserve

Traver, Robert W., 1965, Distinguished University Professor, College of Education
B.S., London; Ph.D., Columbia

Traver, Robert W., 1965, Distinguished University Professor, College of Education
B.S., London; Ph.D., Columbia

Turner, Walter W., 1963, Associate Professor of Mathematics
B.S., M.S., Ph.D., Michigan State

Tyler, Larry L., 1979, Associate Professor of Social Science
M.A., Ph.D., Missouri

Tyndall, Dean R., 1955, Professor of Occupational Therapy
B.S., M.A., O.T. Certificate, Western Michigan

Ulrich, Roger E., 1965, Research Professor of Psychology
B.S., North Central College; M.A., Bradley; Ph.D., Southern Illinois

Urbick, Thelma, 1968, Associate Professor of Counseling and Personnel
B.A., M.A., Western Michigan; Ph.D., Michigan

Valley, Richard B., 1977, Professor and Chairperson, Department of Paper Science and Engineering
B.S., B.F. Rensselaer Polytechnic; M.S., Ph.D., Institute of Paper Chemistry (Lawrence University)

VanBeeck, Leo C., 1956, Professor of Biology
B.A., Western Michigan; M.S., Ph.D., Michigan

VanderKooi, Lambert R., 1970, Associate Professor of Electrical Engineering
B.S.E., Calvin; M.S.E., Ph.D., Michigan

VanHoeven, Shirley A., 1970, Assistant Professor of Communication Arts and Sciences
B.A., Hope; M.A., Ed.D., Western Michigan

Varble, Dale L., 1970, Associate Professor of Marketing
B.S., M.S., Southern Illinois; Ph.D., Arkansas

Vass, Molly Brooke, 1978, Assistant Professor of Counseling and Personnel
B.A., M.A., Ed.D., West Virginia University

Vuiich, George, 1968, Professor of Geography
B.A., M.A., Ph.D., Iowa

Wagenfeld, Morton O., 1966, Professor of Sociology and Health and Human Services
B.S., City College of New York; M.A., Brooklyn; Ph.D., Syracuse; Certificate, Harvard Medical School

Wait, Robert F., 1971, Assistant Professor of Sociology
B.S., M.A., Ph.D., Indiana

Walker, Jess M., 1965, Associate Professor of Education and Professional Development
B.S., M.A., Utah; Ph.D., Michigan State

Walker, Lewis, 1964, Professor of Sociology
B.A., Wilberforce; M.A., Ph.D., Ohio State

Wallace, Roger L., 1966, Associate Professor of Management
B.B.A., B.B.A., Western Michigan; Ph.D., Michigan State

Warfield, Charles C., 1972, Associate Professor of Educational Leadership
B.A., M.A., Western Michigan; Ph.D., Oregon

Warren, H. Dale, 1963, Associate Professor of Chemistry
B.A., Rice Institute; M.S., Idaho; Ph.D., Oregon State

Washington, Earl M., 1970, Assistant Professor of Communication Arts and Sciences
B.A., M.A., Ed.D., Western Michigan

Weaver, Constance, 1965, Associate Professor of English
B.A., M.A., Indiana; Ph.D., Michigan State

Wenner, Donald C., 1961, Professor of Educational Leadership
B.A., Central; M.A., Ed.D., Michigan

Weeysies, Marvin J., 1970, Assistant Professor of Blind Rehabilitation
B.S., M.A., Western Michigan

Welke, William R., 1967, Professor and Chairperson, Department of Accountancy

Wend, Jared S., 1955, Associate Professor of Economics
B.A., Middlebury; M.A., Ph.D., Michigan

Wetnight, Robert B., 1951, Vice President for Finance and Professor of Accountancy
B.B.A., M.B.A., Toledo; C.P.A., State of Ohio

Whaley, Robert L., 1966, Associate Professor of Music
B.M., Kansas; M.M., Iowa

White, Arthur T., 1969, Professor of Mathematics
B.A., Oberlin; M.S., Ph.D., Michigan State

Widerberg, Lloyd C., 1964, Assistant Professor of Blind Rehabilitation
B.A. (Ed.), Northern Illinois State Teachers; M.A., Western Michigan

Wienir, Paul L., 1970, Associate Professor of Sociology
B.A., Washington (Seattle); M.A., Ph.D., North Carolina
Wijnberg, Marion H., 1978, Professor of Social Work
B.S., Cornell; M.S.W., Buffalo; Ph.D., SUNY at Buffalo

Wilcox, Glade, 1955, Professor of Electrical Engineering
B. Ed., Western Illinois; M.S., Ed.M., Illinois; Ed.D., Indiana

Williams, Kenneth, 1973, Associate Professor and Chairperson, Department of Computer Science
B.A., Michigan State; M.A., Western Michigan; Ph.D., Michigan State

Williams, Richard R., 1969, Associate Professor of Health and Human Services
B.S., Kansas State (Pittsburgh); Ph.D., Missouri (Kansas City)

Willis, Clyde R., 1965, Professor of Speech Pathology and Audiology
B.S., SUNY (Geneseo); M.A., Ph.D., Indiana

Willis, Donald J., 1974, Adjunct Assistant Professor of Political Science
B.A., M.F.A., M.P.S., Ph.D., Michigan State

Wilson, Brian L., 1975, Associate Professor of Music
B.M., M.M., Florida State

Wolf, Franklin K., 1970, Professor and Chairperson, Department of Industrial Engineering
B.S., Iowa State; M.S., Wisconsin; Ph.D., Iowa State, P.E.

Wood, Jack S., 1963, Professor of Biomedical Sciences
B.S., M.M., Ph.D., Michigan State

Woodworth, Shirley C., 1965, Assistant Professor of Communication Arts and Sciences
B.A., M.A., Ed.D., Western Michigan

Woods, John W., 1955, Professor of English
B.A., M.A.T., Indiana

Work, Joseph T., 1963, Associate Professor of Music
B.M., M.M., Eastman School of Music; D.M.A., Michigan

Wright, Alden, 1970, Associate Professor of Mathematics
B.A., Dartmouth; Ph.D., Wisconsin

Yang, Kung-Wei, 1966, Professor of Mathematics
B.S., National Taiwan; Ph.D., Indiana

Yelmsa, Paul L., 1975, Assistant Professor of Communication Arts and Sciences
B.A., M.A., University of Denver; Ph.D., Michigan

Zabik, Roger M., 1967, Professor and Chairperson, Department of Health, Physical Education, and Recreation
B.S., Ball State; M.S., Ed.D., Indiana

Zabor, Stephen L., 1978, Assistant Professor of Economics
B.A., Carleton; Ph.D., Northwestern

Zastrow, Joyce R., 1962, Associate Professor of Music
B.A., Valparaiso; M.M., Indiana; D.M.A., Illinois

Zelder, Raymond E., 1964, Professor and Chairperson, Department of Economics
B.A., Harvard; M.A., Ph.D., Chicago

Zietlow, James P., 1965, Professor of Physics
B.S., DePaul; M.S., Ph.D., Illinois Institute of Technology

Ziring, Lawrence, 1967, Professor of Political Science
B.S., M.A., Ph.D., Columbia

Zupko, Ramon, 1971, Associate Professor of Music
B.S., M.S., Juilliard School of Music

Graduate Faculty with continuing approval

Bailey, Keith D., 1955, Assistant Professor of Education and Professional Development
B.S., M.A., Western Michigan

Boughner, Robert E., 1967, Assistant Dean, College of Applied Sciences, and Associate Professor of Industrial Engineering
B.S.E.E., Wayne State; M.B.A., Western Michigan; P.E.

Brown, Russell W., 1951, Associate Professor of Music
B.P.S.M., Oklahoma State; M.Mus.Ed., Notre Dame

Buffum, Valerie J., 1979, Assistant Professor of Social Work
B.S., Kent State; M.S.W., Louisville

Cannon, Zane, 1965, Assistant Professor of Marketing
B.S., M.A., Western Michigan

Chapel, Joe R., 1965, Associate Professor of Education and Professional Development
B.A., Western Michigan; M.A., Michigan State

Chressanthis, James A., 1977, Assistant Professor of Art

Christensen, Arthur L., 1959, Assistant Professor of Education and Professional Development
A.B., Michigan; M.A., Western Michigan

Cooney, Donald F., 1977, Assistant Professor of Social Work
B.A., M.Div., Mary Immaculate; M.A., Fordham

Cordier, Mary H., 1967, Associate Professor of Education and Professional Development
B.A., Northern Iowa; M.A., Michigan State; Ed.S., Western Michigan

Cottrell, June, 1970, Associate Professor of Communication Arts and Sciences
B.S., M.A., Western Michigan

Crowell, Ronald A., 1966, Assistant Professor of Education and Professional Development
B.A., Michigan State; M.A., Toledo

Dadlani, Gurdino G., 1969, Associate Professor of Social Work
B.A., Baroda College (India); M.S.W., University of Baroda (India); M.Sc., Western Reserve
Deshler, Betty J., 1974. Assistant Professor of Social Work
B.A., Wichita;
M.S.W., Michigan

Drzick, Kathleen E., 1965. Assistant Professor of English
B.A. Nazareth;
M.A., Western Michigan

Embs, Ardyth, 1966. Assistant Professor of Librarianship
B.A., Kalamazoo;
M.S.L., Western Michigan

Fox, William S., 1959. Associate Professor of Social Science
B.S., M.A., Western Michigan

Fulton, Tom R., 1955. Associate Professor of Music
B.M., Western Michigan;
M.M., Eastman School of Music

Gammon, Reginald, 1970. Associate Professor of Art and Humanities
Philadelphia Museum College of Art;
Stealia Elkins Tyler
School of Fine Art

Giedeman, Elizabeth, 1953. Associate Professor of Classical Languages
B.S., Miami;
M.A., Michigan

Gill, Joseph H., 1965. Associate Professor of Mechanical Engineering
B.S.M.E., Tri State College;
M.A.B.A., M.S.M.E.,
Michigan State; Ph.D.

Greene, Doris Hoffmann, 1976. Assistant Professor of Social Work
B.A., Michigan;
M.S.W., Wayne State

Hains, Maryellen, 1971. Assistant Professor of English
B.A., Brooklyn College;
M.A., Bowling Green State

Heim, Marilynn Y., 1965. Associate Professor of Music
B.M., Michigan State;
M.A., Western Michigan;
M.S., Ithaca

Howell, Robert W., 1975. Associate Professor of Education and Professional Development and Program Coordinator and Project Documentor of Teacher Corps
B.S., M.A., Western Michigan;
Ed.D., Southern Illinois

Hutchinson, Marshall L., 1977. Assistant Professor of Music
B.A., Hamline;
M.M., Indiana

Johnson, David W., 1979. Adjunct Assistant Professor of Computer Science
B.S., Brigham Young;
M.A., Western Michigan

Jones, Jack D., 1956. Associate Professor of Health, Physical Education, and Recreation
B.A., Texas;
M.A., Western Michigan

Joslyn, David R., 1977. Assistant Professor of Social Work
B.A., Western Michigan;
M.S.W., Michigan

Kennedy, Nedia C., 1978. Assistant Professor of Anthropology
B.A., Pitzer

Klamer, Waldemar E., 1956. Associate Professor of Industrial Education
B.A., Mankato State;
M.S., Stout State

Klein, Roy S., 1967. Associate Professor of Mechanical Engineering
B.S.M.E., Drexel Institute of Technology;
M.S.M.E., Newark College of Engineering

Lawson, Gary D., 1978. Assistant Professor of Speech Pathology and Audiology
B.A., University of Tennessee;
M.A., University of Tennessee

Leighninger, Leslie H., 1978. Assistant Professor of Social Work
B.A., Oberlin;
M.S.W., Syracuse

Lowder, Dwayne M., 1966. Associate Professor of Art
B.A., M.A., North Carolina

Mahan, David C., 1979. Assistant Professor of Biology
B.S., M.S., Ph.D., Michigan State

Mason, Walter R., Assistant Professor of Art
B.A., Beloit;
M.F.A., Indiana

Mathews, Gary R., 1976. Assistant Professor of Social Work
B.A., Cincinnati;
M.S.W., Wayne State

McCaspin, Nathaniel, 1971. Associate Professor of Social Work
B.A., Miles;
M.S.W., Fordham

McCray, Luretta, 1969. Assistant Professor of Dance
B.M., M.A., Western Michigan

Mergen, Paul S., 1965. Associate Professor of Art
B.S., M.S., Wisconsin

Miller, Paule, 1964. Assistant Professor of French
Baccalauréat de philosophie,
Lycée de St. Quentin;
B.A., M.A., Western Michigan

Mislestein, David N., 1977. Adjunct Associate Professor of Political Science
B.A., M.A., Chicago

Mohr, Joanne, 1966. Associate Professor of Art
B.S., M.A., Western Michigan

Moulton, Helmi K., 1960. Associate Professor of Art
B.S., Central Michigan;
M.Ed., Wayne State

Naftel, Bruce, 1974. Assistant Professor of Art
B.S., M.A., Western Michigan

Northam, Jack I., 1968. Adjunct Associate Professor of Mathematics
B.A., New York;
M.A., Michigan State

Orr, Genevieve, 1964. Assistant Professor of French
Baccalauréate,
Licence de lettres (Paris);
B.A., M.A., Western Michigan

Para, Donald, 1972. Assistant Professor of Music
B.M., M.M., Western Michigan

Phillips, Deloris Jordan, 1972. Assistant Professor of Social Work
B.A., M.E., Wayne State;
M.S.W., Western Michigan

Ponchilla, Paul E., 1979. Assistant Professor of Blind Rehabilitation
B.S., Eastern State;
M.A., Western Michigan;
Ph.D., Iowa State

Pridgeon, Arden D., 1965. Associate Professor of Mechanical Engineering
B.S., M.A., Michigan State;
P.E.

Rayl, Leo S., Jr., 1965. Associate Professor of Industrial Engineering
B.S.M.E., Purdue;
M.S.I.M., Kranert School (Purdue);
M.P.A., Western Michigan;
Ed.D., Pacific States

Robb, Joan Robin, 1979. Assistant Professor of Social Work
B.A., Wilson College;
M.A., Church Divinity School of the Pacific;
M.S., Case Western Reserve

Ryan, L. D., 1967. Associate Professor of Mechanical Engineering
B.S.M.E., Tri-State

Schreiber, William P., 1968. Assistant Professor of Physical Education
B.S., M.Ed., Illinois

Schubert, Richard C., 1969. Associate Professor of Mechanical Engineering
B.S.M.E., Illinois;
M.S.M.E., Wayne State
Schwersinske, Walter C., 1967, Associate Professor of Industrial Education
  B.S., Andrews; M.A., Western Michigan

Sechler, Robert E., 1959, Associate Professor of Mathematics
  B.A., Albion; M.S., Michigan State

Smith, Dorothy E., 1963, Assistant Professor of Education and Professional Development
  B.S., Northwestern; M.A., Western Michigan

Smith, William K., 1967, Assistant Professor of Librarianship

Stiefel, William J., III, 1964, Associate Professor of Mechanical Engineering
  B.S. (CE), Drexel Institute of Technology; M.S. (CE), Lehigh

Stillwell, Lyda J., 1966, Associate Professor of Theatre
  B.F.A., Texas; M.A., Washington

Upjohn, William John, 1971, Adjunct Professor of Management
  B.A., Hobart

Urich, Roger R., 1967, Associate Professor of Mechanical Engineering
  B.S.M.E., M.S.M.E., Michigan Technological University

Varner, Michael L., 1977, Instructor of Music
  B.M.E., Bowling Green State; M.M., Michigan

Watson, Archie E., 1970, Assistant Professor of Education and Professional Development
  B.A., M.A., Michigan State

Wolk, James L., 1977, Assistant Professor of Social Work
  B.A., California State (Long Beach); M.S.W., Missouri; M.D.S., California State (Fullerton)

Woodhouse, Robert H., 1977, Assistant Professor of Management
  B.A., B.S., M.A., Ph.D., Iowa

Wygant, Robert, 1977, Assistant Professor of Industrial Engineering
  B.S.I.E., Ohio State; M.B.A., Western Michigan

Zegree, Stephen, 1978, Assistant Professor of Music
  B.M., Miami; M.M., Indiana
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