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1974

Bulletin - Western Michigan University: The Graduate Catalog 1974-1975

Western Michigan University

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CALENDAR OF EVENTS

Spring Session 1974
Final Registration ........................................ May 4, 1974
Classes Begin ............................................ May 6, 1974
Final Day to Add Classes ......................... See Spring Class Schedule
Final Day to Drop Classes ......................... See Spring Class Schedule
Applications for Admission to Graduate College
   Due for the Summer Session .................. May 1, 1974
Diploma Applications Due for August
   Commencement .................................. May 17, 1974
Memorial Day Recess .............................. May 27, 1974
Session Ends ......................................... June 26, 1974
Approved Theses, Projects and Dissertations Due in
   Graduate Office for Summer Commencement .... August 9, 1974

Summer Session, 1974
Final Registration ........................................ July 1, 1974
Applications for Admission to Graduate College
   Due for the Fall Semester .................... July 1, 1974
Classes Begin ........................................ July 2, 1974
Final Day to Add Classes ......................... See Summer Class Schedule
Final Day to Drop Classes ......................... See Summer Class Schedule
Independence Day Recess ......................... July 4, 1974
Approved Theses, Projects and Dissertations Due in
   Graduate Office for Summer Commencement .... August 9, 1974
Session Ends ......................................... August 23, 1974
Commencement ......................................... August 23, 1974
   6:00 P.M.

Fall Semester, 1974
Final Registration ........................................ August 31, 1974
Classes Begin ........................................... September 3, 1974
Final Day to Add Classes ......................... See Fall Class Schedule
Final Day to Drop Classes ......................... See Fall Class Schedule
Diploma Applications Due for December
   Commencement .................................. September 20, 1974
Classes Dismissed at 2 P.M. Friday only
   (Laboratories excepted) ....................... October 11, 1974
Homecoming ......................................... October 12, 1974
Applications for Admissions to Graduate College
   Due for Winter Semester ..................... November 1, 1974
Thanksgiving Day Recess Begins at Noon ........ November 27, 1974
Classes Resume ...................................... December 2, 1974
Approved Theses, Projects and Dissertations Due in
   Graduate Office for Fall Commencement ........ December 2, 1974
Semester Ends ........................................ December 18, 1974
Commencement ........................................ December 18, 1974

7:00 P.M.

Winter Semester, 1975

Final Registration .................................. January 4, 1975
Classes Begin ....................................... January 6, 1975
Final Day to Add Classes ......................... See Winter Class Schedule
Final Day to Drop Classes ......................... See Winter Class Schedule
Diploma Applications Due for April
Commencement ...................................... January 24, 1975

Applications for Fellowships and
Associateships for 1975-76 ......................... February 15, 1975

Applications for Admission to Graduate College
Due for Spring Session ............................. March 1, 1975
Semester Recess ..................................... March 3, 1975
Classes Resume ...................................... March 10, 1975
Good Friday Recess (12 Noon) ..................... March 28, 1975
Approved Theses, Projects and Dissertations Due in
Graduate Office for Winter Commencement ....... April 11, 1975
Semester Ends ...................................... April 26, 1975
Commencement ...................................... April 26, 1975

2:00 P.M.

Spring Session, 1975

Final Registration .................................. May 3, 1975
Classes Begin ....................................... May 5, 1975
Final Day to Add Classes ......................... See Spring Class Schedule
Final Day to Drop Classes ......................... See Spring Class Schedule

Applications for Admission to Graduate College
Due for the Summer Session ...................... May 1, 1975

Diploma Applications Due for August
Commencement ...................................... May 23, 1975
Memorial Day Recess ............................... May 26, 1975
Session Ends ....................................... June 25, 1975
Approved Theses, Projects and Dissertations Due in
Graduate Office for Summer Commencement ...... August 8, 1975

Summer Session, 1975

Registration, All Students ........................ June 30, 1975
Applications for Admission to Graduate College
Due for the Fall Semester ........................ July 1, 1975
Classes Begin ....................................... July 1, 1975
Final Day to Add Classes ......................... See Summer Class Schedule
Final Day to Drop Classes ......................... See Summer Class Schedule
Independence Day Recess .......................... July 4, 1975
Approved Theses, Projects and Dissertations Due in
Graduate Office for Summer Commencement .......... August 8, 1975
Session Ends .......................................................... August 22, 1975
Commencement .......................................................... August 22, 1975
6:00 P.M.

BOARD OF TRUSTEES

Dr. Julius Franks, Jr., Grand Rapids  December 31, 1974
Philip N. Watterson, Cascade  December 31, 1974
Mildred Swanson Johnson, Muskegon  December 31, 1976
Robert D. Caine, Hickory Corners  December 31, 1976
Fred W. Adams, Grosse Pointe  December 31, 1978
Charles H. Ludlow, Kalamazoo  December 31, 1978
John R. Dykema, Grosse Pointe Farms  December 31, 1980
Maury Lyon Parfet, Hickory Corners  December 31, 1974
Myron L. Coulter

John T. Bernhard

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John R. Dykema, Vice Chairman
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Robert B. Wetnight, Treasurer
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Clayton J. Maus, M.A., Dean, Admissions and Records
Robert Beecher, J.D., Controller

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Fernando B. Alio, Graduate Student
Triantafilos D. Argyropoulos, M.F.A., Department of Art
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Jean B. Romaniuk, Graduate Student
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Diane E. Smith, Graduate Student
W. Thomas Straw, Ph.D., Department of Geology
John H. Stroupe, Ph.D., Department of English
David R. Taylor, Ed.D., Department of Teacher Education
Franklin K. Wolf, Ph.D., Department of Engineering and Technology
The Graduate College

GEORGE G. MALLINSON,
Dean

RICHARD T. BURKE,
Associate Dean

SID DYKSTRA,
Associate Dean

Western Michigan University was established by the State Legislature in 1903. Although the University has continued to meet its initial obligation, the preparation of teachers, the growing educational needs of the State have changed the role of the institution to that of a multi-purpose university. Students today may enroll in undergraduate and graduate programs in the Colleges of Applied Sciences, Arts and Sciences, Business, Education, and Fine Arts, as well as in the Schools of Librarianship and Social Work. The University's enrollment for Fall, 1973, was 20,922 with 3,582 enrolled in graduate programs.

Graduate programs were first offered in 1938 in cooperation with the University of Michigan. This cooperative program continued until 1952, when the State Board of Education authorized Western to grant its own master's degree. With rapidly increasing enrollments, new master's degree programs were initiated. Today Western Michigan University has fifty-nine master's degree programs. Master of Arts degrees were awarded in twenty-three programs in the following general categories within the College of Education: Educational Leadership, Counseling-Personnel, Special Education, Blind Rehabilitation, Audiovisual Media; Teaching the Economically and Educationally Disadvantaged, Teaching of Reading, Teaching the Community College, and Curricula in Teaching. Twenty-two other educational programs at Western also lead to the Master of Arts degree: Anthropology, Art, Biology, Chemistry, Communication Arts and Sciences, Earth Science, Economics, English, Geography, Geology, History, Home Economics, International and Area Studies, 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, Business, Computer Science, Librarianship, Operations Research, Paper Science and Engineering, Technology, and Statistics, as well as the Master of Business Administration, Master of Fine Arts, Master of Music, Master of Occupational Therapy, Master of Public Administration, and Master of Social Work degrees.
In 1960 programs leading to the Specialist in Education degree were introduced. Upon completion of a sixth-year program, this degree is offered in Educational Leadership, Counseling-Personnel, Special Education, and School Psychology. In addition, the University offers Specialist in Arts degrees in Business Education, English, History, International and Area Studies, Librarianship, Mathematics, and Science Education.

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

General Policies And Procedures

ADMISSION DATES

An Admission to The Graduate College is required of each student planning to secure a degree beyond the baccalaureate. The deadlines for submitting applications for admission are as follows:

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

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

A graduate student retains active admission status for one year from the time of 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 an application for admission to The Graduate College.

ADMISSION PROCEDURES

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

1. Request of The Graduate College an “Application for Admission.” The request should indicate the degree level for which application is desired: Master’s, Specialist’s, Doctor’s.
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 deadlines for admission.
4. Request the Registrar of each college previously attended, except Western Michigan University, to send an official transcript of credits to The Graduate College. The transcripts are due in The Graduate College prior to the established deadline date for admission.
5. Take the English Qualifying Examination at the time scheduled by The Graduate College. Other tests may be required by some departments.

ADMISSION OF FOREIGN STUDENTS

A foreign student with a degree from an institution in the United States will be considered for admission on the same basis as that for a resident. A foreign student whose academic record is based totally, or in large part, on an education acquired in a foreign country will be reviewed on an individual basis by The Graduate College and the Department in which the student wishes to pursue graduate study. A foreign student who does not have a permanent visa is required to have admission to a degree program. Application for admission may be secured from the Office of Foreign Student Affairs.

TYPES OF ADMISSION

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

1. Regular admission — Degree status
   a. Admission is granted to the student who has an acceptable academic record, who has passed the required entrance examinations, and who has met the admission requirements of the program he or she plans to pursue. Acceptance to a definite program of study leading to a degree is dependent upon the approval of the unit in which the student plans to study. For further information see the admission requirements of that curriculum.
   b. Admission with reservation is granted to the student who has fulfilled the general requirements for admission but may not have fulfilled the specific requirements of a particular program or passed the English Qualifying Examination. 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 enrollee status on the application for admission.

2. Probationary admission — Non-degree status
   a. Probationary admission on non-degree status is granted to the student with a somewhat less than satisfactory academic record. A point-hour ratio of at least 2.3 in the final two years of undergraduate study and the approval of the 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 admission to a degree program by completing the departmental reservations that are specified, by securing no grades below "B" in at least six credits on campus, by securing satisfactory scores on the Graduate Record Examination, and by passing the English Qualifying Examination. A Student admitted on a non-degree basis is not permitted to include more than nine hours of credit earned as a non-degree student in a degree program. No assurance can be given in a degree program or used to meet the requirements for graduation.

b. Probationary admission on non-degree status is granted to the student with a bachelor's degree from a non-accredited college, provided all other requirements for admission are fulfilled. Again, a student admitted on non-degree status may establish eligibility for admission to a degree program by securing no grades below "B" in at least six credits on campus, by securing satisfactory scores on the Graduate Record Examination, and by passing the English Qualifying Examination. No assurance can be given a non-degree student that any credits earned will be accepted in a degree program or used to meet the requirements for graduation.

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 the status, Permission to Take Classes (PTC). 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. A maximum of nine credits taken under PTC status may be considered in any degree program if a student should later decide to apply for admission to a program of study leading to a graduate degree.

ELIGIBILITY OF FACULTY FOR GRADUATE STUDY

Western Michigan University faculty members who hold continuing appointments at the rank of instructor or above may not earn a doctoral degree at Western Michigan University. This restriction also applies to administrative personnel in classes A-3 and above. Faculty and all administrative personnel are eligible to apply for admission to master's and specialist degree programs, but only in academic departments or schools where they are not employed.

MICHIGAN INTERCOLLEGIATE GRADUATE STUDIES

The Michigan Intercollegiate Graduate Studies (MIGS) program is a guest scholar program which enables graduate students of Michigan public institutions offering graduate degree programs to take advantage of unique educational opportunities on the campuses of the nine participating institutions. Western Michigan University is one of the participants. The others are Central Michigan University, Eastern Michigan University, Michigan State University, Michigan
Technological University, Northern Michigan University, Oakland University, University of Michigan, and Wayne State University.

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

REGISTRATION

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

Any changes in student's schedule must be made in accordance with the procedures announced in the Schedule of Classes. A student may not withdraw from graduate courses beyond the midpoint of each semester or session.

STUDENT LOAD

The maximum number of semester hours that may be elected by a full-time graduate student is fifteen in a semester and eight in a session. Any enrollment in excess of these maximums must be made with the approval of the student's graduate adviser and 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, Program Fellowship, or Associateship is two or three courses (6-9 hrs.). A student who is employed should reduce his or her load accordingly. The normal load for a student employed full time is one course per semester or session.

COURSE NUMBERING SYSTEM

Two types of courses are offered in The Graduate College: (1) Those numbered 600 and above are open only to graduate students, and (2) those numbered 500 through 599 are open to both upperclassmen and graduate students. In all courses open to both upperclassmen and graduates, a distinction is made between the work expected from graduate students and that from undergraduates. The work expected from graduates may be of higher quality or greater quantity or both.
In certain instances, an adviser may permit a student to include up to six semester hours of 300-400 level courses in a graduate program, provided the student receives written permission from his adviser and The Graduate College prior to registering for these courses and then earns a grade of "B" or higher. Such courses are to be taken in cognate areas outside the student's department or as part of an interdisciplinary program. These courses earn undergraduate credit which is not computed into the graduate point-hour ratio.

**RESIDENCY**

The following policy adopted by the Board of Trustees of Western Michigan University on July 20, 1973, applies to all students:

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

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

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 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 is classified as a resident.

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

**STUDENTS FEES**

Changes in the fee schedule are being considered as this Bulletin goes to press. In 1973-74 the following fee schedule was used for graduate study on campus:

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

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

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

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

Other fees:

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

Student fees are subject to change by Western Michigan University Board of Trustees at any time without notice.

REFUNDS AND CHANGE OF CLASS LOAD

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

1. Reducing Credit Hour Load: A refund will not be granted for reducing the credit load after the final day for adding a course as established by the Dean of Records and Admissions.
2. Pre-registered students who have paid student fees prior to the last day of registration and who subsequently reduce their load during the drop-add period shall be entitled to a refund of 100% of any difference in the assessments.
3. Changes in student loads prior to the end of the final day for adding a course are reassessments.

GRADING SYSTEM

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Significance</th>
<th>Honor Points Per Hour Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Above Average</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>Average</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>Below Average</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>Failure</td>
<td>0</td>
</tr>
<tr>
<td>X</td>
<td>Unofficial Withdrawal</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td>0</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>VS</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 “F” in his graduate record.

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

I Incomplete This is a temporary grade given for work which is passing in quality but lacking in quantity to meet course objectives. It is assigned when an instructor, in consultation with a student, concludes that extenuating circumstances prevent the completion of course requirements. Incompletes, except those given in 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, B=Credit; C, F= No Credit) is used in all 700-level courses, as well as some departmental courses and programs approved by the Graduate Studies Council. The student’s permanent record will indicate “CR” when the course is passed and “NC” when the course is incomplete or failed.

VS Audit — The symbol “VS” is used to indicate when 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.

**GRADUATED WITH HONORS:** A student attaining a point-hour ratio of 4.0 at the conclusion of a graduate program at Western Michigan University will be “Graduated with Honors.”

**FELLOWSHIPS, ASSOCIATESHIPS, ASSISTANTSHIPS**

A graduate student with an appointment is defined as one who is pursuing an advanced degree on a full-time basis and is receiving financial assistance (equivalent to at least $500 per semester) of the following types: fellowship, associateship, traineeship, or assistantship. A graduate student with an appointment will be permitted to pay the in-state, or resident, portion only of the assessed fees.

**Fellowships:**

The Graduate College offers the following types of fellowships to a student pursuing a program of study for the master's degree on a full-time basis without outside employment.

1. **University Fellowships** of approximately $3,000 per academic year are available to students with bachelor's degrees from accredited colleges and universities. They are granted on a competitive basis to persons who possess a combination of qualities indicating potential leadership in their
respective fields including outstanding academic records. Application forms, transcripts and letters of recommendation must be submitted to The Graduate College by February 15.

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

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

Associateships:

The Graduate College provides Associateships of approximately $4,000 per year to students enrolled in doctoral programs. Associates are expected to participate in approximately fifteen hours per week of professional activity consistent with their educational aims and objectives. Application forms, transcripts and letters of recommendation must be submitted to The Graduate College by February 15.

Assistantships:

Graduate Assistantships of approximately $3,000 per academic year are provided in many of the departments offering graduate programs. Inquiries for Assistantships should be sent directly to the department in which the student plans to concentrate his study. The amount of professional service required of graduate assistants varies among departments, usually ranging from fifteen to twenty hours per week for an academic year.

OTHER FINANCIAL ASSISTANCE

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

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

   b. National Direct Student Loans (NDSL): Through this program, formerly National Defense Student Loan, loans are available to graduate students who have demonstrated a financial need. A full-time graduate student may borrow up to $10,000, including loans received as an undergraduate. The actual amount borrowed may not exceed the student's demonstrated need. The interest rate of 3 percent and repayments start nine months after leaving college. The minimum monthly repayment is $30. Part or all of the loan is forgiven for those teaching in specified areas; under stated provisions partial cancellation is also provided for military service. Repayment may be deferred up to three years while in service in the Armed Forces, or as a volunteer in the Peace Corps or VISTA.
c. Federally Insured Student Loan (GSL): The Federal government guarantees loans made by private lending institutions (bank, savings and loan, credit unions) to graduate students up to a maximum of $2,500 per year. The agency within each state which administers this program may at its discretion lower this maximum; in Michigan the limit is $1,500. Graduates may borrow up to $10,000 including undergraduate loans. These loans bear a 7 percent simple interest rate which is waived for the student while attending college and nine months after leaving school on that portion of the loan which is equal to the student's need; the latter is the difference between the educational costs and the student's resources including any expected family contribution to be determined by criteria established by the U.S. Office of Education. The student should apply directly to his local lending institution which participates in this program. The names of participating institutions can be obtained from your high school principal or counselor or for those in Michigan at WMU's Office of Student Financial Aid and Scholarships.

d. Law Enforcement Education Program (LEEP): This federal program was established in 1969 to encourage persons interested or engaged in law enforcement to pursue studies in higher education beneficial to them in this profession. Law enforcement involves "all activities pertaining to crime prevention or reduction and enforcement of the criminal law." Grants up to $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 $1100 per semester are available for full-time graduate students enrolled in the "Corrections Program", offered by the School of Social Work. Loan recipients may be employed in, or intend to enter, the "law enforcement" profession.

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

2. Non-Federal Financial Aid Programs:

a. United Student Aid Fund: Students unable to qualify for a National Direct Student Loan and unable to obtain a federally guaranteed student loan may apply to their local lending institution which participates in this program. The names of participating institutions can be obtained from the United Student Aid Funds, Inc.; 5259 North Taconic Avenue, Indianapolis, Indiana 46220. The loan is not to exceed $1500 per academic year for an undergraduate or graduate student.

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

College Aid Plan, Inc.  
1008 Elm Street  
Manchester, New Hampshire 03101

The Tuition Plan  
Concord, New Hampshire 03301

c. Short Term Loans and Employment Opportunities: For information on the 92 short term loan funds, most of which are available for full-time graduate students to meet educational expenses, as well as employment opportunities both on and off campus, contact the Office of Student Financial Aid and Scholarships, Room 3306, Student Services Building.

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

VETERANS' ASSISTANCE

Answers to questions pertaining to veterans' educational assistance, benefits, and other problems may be obtained at the Office of the Veterans' Coordinator, Room 3210, Administration Building. The telephone number is 383-1630 or 383-1631.

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

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

STUDENT ACADEMIC RIGHTS

I. Introduction

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

A. In the Classroom

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

B. Protection Against Improper Academic Evaluation

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

C. Protection of Freedom of Expression

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

II. Policies and Procedures

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

B. Procedures for Reviewing Student Grievances Related to Grading

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

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

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

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

5. The Graduate Committee on Academic Fairness consists of three faculty and three graduate students.

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

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

8. To protect all parties involved in any case, the strictest privacy consistent with the Committee's task will be maintained.

9. Occasions do occur when a faculty or an administrative official may be able to them.

C. Policies and Procedures Regarding Requirements

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

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

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

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

5. The University Ombudsman will have the authority to investigate complaints and recommend or negotiate fair solutions on behalf of the student.
UNIVERSITY OMBUDSMAN

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

UNIVERSITY LIBRARIES

The University Libraries consist of the Main Library (Dwight B. Waldo Library) and four branches: the Business Library, the Music Library, the Physical Sciences Library and the Educational Resources Center Library. The University Libraries are organized and maintained for the purpose of providing materials and services necessary to the instruction and research carried on at the University. The collection numbers over 1,100,000 items including books, bound periodicals, music scores, recordings, maps, documents and materials in microform. Over 11,000 periodicals and serials and 100 newspapers are currently received. The Library system is a depository for Michigan and United States government documents, and receives the microprint edition of the United Nations documents as well as monographs and reports of the major associated organizations.

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

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

Special collections include:

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

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

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

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

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

6. The C. C. Adams Ecological Collection consists of the personal collection and papers of the pioneer American ecologist, Charles C. Adams.
7. A microform collection of over 260,000 contains such items as the Human Relations Area File, American Periodical Series, Early American Newspapers of the 18th and 19th centuries, Early English Books, 1475 — 1640, back issues of the New York Times and the London Times, a current awareness service in the area of urban affairs (Urban Affairs Data Bank), etc.

8. The Map Collection, an unusually large collection of 112,000 items, includes Army and U. S. Geological Survey maps, some antique maps of special historic interest, various domestic and foreign maps, and over 700 atlases.

The Business Library, located in North Hall, has a collection of some 33,000 books, supplemented by special microform collections, and currently subscribes to 500 periodicals and newspapers.

The Music Library is on the second floor of Maybee Music Hall. In addition to a book collection of some 18,500 volumes and 75 periodical subscriptions, this branch contains a collection of 10,000 phonograph records and extensive listening facilities.

The Physical Sciences Library contains some 40,000 volumes in the fields of Mathematics, Astronomy, Physics and Geology. This branch is located on the third floor of Rood Hall.

The Educational Resources Center Library in Sangren Hall comprises some 176,000 bibliographic items and receives 670 periodical titles. The Center is a cooperative venture between the University Libraries and the College of Education, combining the best of library and audiovisual facilities and practices into a single center for the improvement of instruction and learning.

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

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

Research materials which are not in our collections and are not available or not suitable for purchase can often be secured through interlibrary loan. Requests for loans may be initiated at public service desks in our libraries, 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 1601, corporation and insurance company reports, foreign dissertations, etc. Loan copies of the Center's Handbook, describing the contents of the collection are available in our Interlibrary Loan Center an from our Acquisitions Department.

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

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

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

Married Student Housing:

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

On Campus Housing:

There are twenty-one residence halls on campus including Walwood Hall, which has been set aside for 114 single students, both male and female, who are twenty-one years or older. Several options are available in the other halls: co-ed by suites, co-ed by floors, single sex, gang bathrooms, suite bathrooms, non-food contracts, and quiet floors. Spindler Hall, housing both men and women, is open year-round and is programmed to attract students, both American and foreign, who are interested in an international living experience. It has new and complete kitchen facilities in a central area to allow students the opportunity to cook for themselves — a great chance for them to try recipes from around the world. Requests for on-campus housing should be directed to the Manager of Residence Halls, Student Services Building, Western Michigan University, Kalamazoo, Michigan, 49001.

HEALTH SERVICE

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

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

The Health Center is open twenty-four hours a day, seven days a week, during the fall and winter semesters and the spring session, and from 8:30 a.m. to 4:30 p.m., Monday through Friday, during the summer session. Clinics are scheduled daily from 8:30 a.m. to 4:30 p.m. Monday through Friday, and on Saturday from 9:00 a.m. to 12:00 noon during periods when classes are in session. The Saturday clinics are limited to emergent or urgent cases. A service fee is charged for students.
requesting service between the hours of 5:00 p.m. and 8:00 a.m., after 12:00 noon on Saturday and before 8:00 a.m. on Monday. Spring and summer sessions the Health Center hours are 8:30 a.m. to 11:30 a.m. and 1 p.m. to 4:15 p.m. Spring and summer sessions we do not have Saturday or Sunday hours for out patients. Our hospital inpatient area is closed for the summer session.

In cases of sudden illness or serious accident at hours the clinics are not scheduled, a student patient may be taken to the Health Center or to an emergency room of a local hospital. The decision must be made on the basis of the seriousness of the medical problem and an understanding that a physician, although on duty and subject to call, is not at the Health Center during non-clinic hours. The Bronson Hospital emergency room is staffed by physicians at all times. If an emergency case is taken to the Health Center during non-clinic hours, the nurse on duty must make a professional judgment to confer with the physician on call, refer the patient to a hospital emergency room or arrange for temporary care pending a physician's examination later.

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

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

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

Parents of foreign students may have an insurance policy which provides benefits to a son or daughter but such policies frequently provide benefits only when an illness or accident occurs in the family's country. Citizens of other nations who are studying or conducting research as foreign students on a temporary U.S. visa, e.g.; F-1, J-1, B-2, etc, are required to maintain health and accident insurance coverage while they are attending the University which will provide benefits in the United States. Students not covered by an existing insurance policy may be interested in the group health and accident policy offered to students through the University. Foreign students may also wish to contact the Office of Foreign Student Affairs for information about other desirable insurance programs.

**CAREER PLANNING AND PLACEMENT SERVICES**

Graduate students and alumni of Western Michigan University who desire assistance in making initial career choices, who desire to upgrade themselves in their present occupation, or who may wish to investigate a different line of work are invited to talk over any of these possibilities with a trained counselor in the Career Planning and Placement Office. An extensive library of occupational information in hundreds of fields is also available.

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

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

COUNSELING CENTER

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

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

Testing and Evaluation Services are located in West Hillside Apts., D-4, and the phone number is 383-0955.

FOREIGN STUDENT AFFAIRS

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

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

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

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

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

Master's Degree Programs and Requirements

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. Attainment of a satisfactory score on the English Qualifying Examination.
      A non-credit English course must be passed by students failing this examination.
   e. Acceptance by both The Graduate College and a unit for a definite program of study.

2. Candidacy
   a. A permanent program which will constitute an application for admission to candidacy must be submitted to The Graduate College during the first semester of enrollment.
   b. Reservations indicated on the program and the certificate of admission must be removed before candidacy will be approved.
   c. A point-hour ratio of at least 3.0 (A=4.0) must be secured in all courses taken on campus. A 3.0 overall average is also required. Honor point deficiencies acquired in on-campus credits cannot be made up by credits earned at another university or by extension.
   d. A thirty-hour program may include a maximum of four hours of credit in 598 readings courses and six hours of 700-level credit.

3. Graduation — (See Calendar of Events for application deadline.)
   a. Diploma Application: A diploma application must be submitted no later than three months prior to Commencement. Three Commencements are held per year: April, August, and December.
   b. Minimum Credit Hours: Completion of a minimum of 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.
c. **Residence Credit:** Completion of a minimum of one full session (five semester hours minimum) or one semester (nine semester hours minimum or its equivalent) of residence on campus is required. Students who are employed in the same position on a twelve-month basis may register for four consecutive semesters of work on campus in lieu of the five or nine hour requirement. Of the total of thirty semester hours, a minimum of eighteen hours must be taken on the campus of Western Michigan University except for those students who study in an approved residence center of Western Michigan University in Benton Harbor, Muskegon or Grand Rapids. Such students may offer a maximum of twenty hours of off-campus work. Work transferred from other institutions must be included within the twelve hours maximum off-campus work permitted or in the case of the student studying in a residence within the twenty hours of off-campus work permitted.

d. **Point-hour Ratio:** A point-hour ratio of 3.0 (A=4) is required for courses taken on campus as well as an overall 3.0. To maintain a B average each hour of C must be offset by an hour of A and each hour of E must be offset by three hours of A.

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

f. **Transfer Credit:** Six semester hours (three quarter or term hours are equivalent to two semester hours) of graduate credit may be transferred other schools provided:

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

2.) The Graduate College approves the credits for transfer.

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

g. **Time Limit:** All work accepted for the degree program must be elected within six years preceding the date on which the graduate degree is conferred.

h. **Master’s Thesis:** A student writing a Master's Thesis (6 hrs.) must present the thesis in a form acceptable to the unit and The Graduate College. In writing a thesis a student should consult the most recent edition of *Specifications for Masters’ Theses, Specialist Projects, and Doctors’ Dissertations*, available in the Campus Bookstore.

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

When a student wishes to secure a second master’s degree he may include a maximum of ten credits from his first graduate degree program. The second degree program must meet the other usual requirements for a master’s degree, except the English Qualifying Examination.
In order to earn a degree, a student is required to complete a program of study. Each degree candidate must choose a graduate program that is compatible with his objectives. The programs listed on the following pages have been developed to provide students with the basic experiences that implement these objectives. The programs are, however, sufficiently flexible to allow for the differing needs of individual students.

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

**Accountancy**

John T. Burke, Adviser

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

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

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

**Alcohol and Drug Addiction**

Thomas K. Williams, Adviser

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

Students receive training for dealing with varied aspects of substance abuse including prevention, community education, and treatment and rehabilitation. Program graduates may be employed by many public and private organizations including social agencies, psychological clinics, family counseling services, alcohol and drug councils, hospitals and industries.
Students receive their master's degree in their respective disciplines and upon completion of the Specialty Program requirements receive a certificate of Specialty in Alcohol and Drug Addition.

**Admission Requirements:**

Students must be accepted by The Graduate College and admitted to a masters, specialist, or doctoral degree program in Biology, Counseling and Personnel, Psychology, Sociology or the School of Social Work. Persons who have previously completed a graduate degree in one of these disciplines may apply for admission to the Specialty Program in The Graduate College.

**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 eleven semester hours of courses related directly to substance abuse and a six to eight semester hour field placement in one or more agencies dealing with substance abuse. Credit for the field placement will be elected in the courses designed for such activities in the department or school in which the student earns his master's degree. The hours taken for the academic and seminar components of the Specialty Program are in addition to the degree requirements of the department or school in which the student is enrolled. In some of these units the required Specialty courses may be integrated with the regular degree requirements. The extent of this integration varies and can be determined for each department or school. In addition to the six to eight semester hours field training experience the following courses are required in the Specialty Program in Alcohol and Drug Addiction:

- BIOL 507 — The Biology of Addictive Drugs (2 hrs.)
- PSY 622, SOC 617 — The Etiologies of Substance Abuse (3 hrs.)*
- BIOL 603, C-P 631, PSY 664, SOC 618, SWRK 663 — Seminar in Substance Abuse I (3 hrs.)*
- BIOL 604, C-P 632, PSY 665, SOC 619, SWRK 665 — Seminar in Substance Abuse II (3 hrs.)*

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

**Anthropology**

The Master of Arts degree program in Anthropology is intended to provide the student with a sound understanding of the discipline as a whole. In addition it requires a concentration, appropriate to its academic level, upon one of the major branches of Anthropology. These may be identified as archeology, ethnology (cultural anthropology), and physical anthropology. Research experience in archeological and ethnographic field schools is available.

**Admission Requirements**

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

2. Accumulation of 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
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statistics. This requirement can be satisfied by the student's undergraduate program.

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

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

Program Requirements

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

2. 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

MASTER OF ARTS IN ART

T. D. Argyropoulos, L. Rizzolo, Advisers

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

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

Admission requirements:

1. A BA or BFA in art, or its equivalent.

2. A 3.0 (B) point-hour ratio in art work taken during the last two undergraduate years, or their equivalent.

3. A portfolio, or slides, or art work must be submitted for review along with the appropriate admission request papers.

4. A statement of intent indicating the area of emphasis a student would
elect, and his twelve hour area of concentration is required with portfolio. The identification of a faculty member with whom a student would like to work is helpful.

Program requirements for the MA in Art:

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

Additional requirements for the two emphases are:

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

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

MASTER OF FINE ARTS

T. D. Argyropoulos, Adviser

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

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

Program requirements for the MFA:

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

MASTER OF ARTS IN THE TEACHING OF ART

H. Hefner, Adviser

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

Prerequisites:

A portfolio is required which is reviewed by a six-man board representing all major departmental areas. Applicants are urged to make application before October for Winter enrollment and before March for Spring, Summer or Fall enrollment.

General level of competency required is equivalent to a major in Art. Students should consult with the advisor at the earliest opportunity for undergraduate course review and schedule of study.

Program requirements for the Master of Arts in the Teaching of Art:

1. Thirty hours of graduate credit, of which fifteen hours must be in art credits to include art education, art history and art practices courses.
2. Nine hours selected from four courses in the School of Education:
   a. TEED 601, Introduction to Research in Education
   b. TEED 602, School Curriculum
   c. TEED 603, Social and Philosophical Foundations
   d. TEED 604, Psychological Foundations of Education
3. Six hours of electives in major field or education.

Biology

Clarence J. Goodnight, Chairman of Advisers

The Master of Arts degree program in Biology is designed to allow the student to develop abilities to conduct research, analyze, interpret and present data as well as to provide a general background in the field. The degree may be used as a foundation for continued graduate work leading to a doctor's degree at another institution or may be considered terminal. A Master's Thesis (6 hrs.) must be prepared under the supervision of an Advisory Committee and a Major Advisor. The Major Advisor must be a member of the Biology Department and the Graduate Faculty having competence in the area of the student's major interest. Specialization is permitted in most areas of biology but areas of greatest strength are: Environmental Biology, Genetics, Microbiology, Physiology and Plant Biology.

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

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

Blind Rehabilitation

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

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

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

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

Orientation and Mobility

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

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

Rehabilitation Teaching

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

The thirty-six 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.
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. In addition, the degrees of Master of Science in Accountancy and other Business areas and Specialist in Business Education are offered. The College of Business also cooperates with the Department of Teacher Education in offering the Teaching of Business Education curriculum.

The student is challenged to develop the judgment, discriminating capacity, knowledge and understanding which will permit him to work efficiently in administrative and other leadership roles. Under the guidance of the graduate staff of the College of Business, personal programming for the participant is provided.

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

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

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 provided in Accountancy, Economics, Finance, Law, Management, Marketing and Statistics. This requirement may be satisfied by waiver (in case of prior completion of appropriate undergraduate courses, the BBA core courses or the equivalent), by examination or by taking Administrative Accounting 505 (or Principles of Accounting 210, 211); Principles of Economics 201, 202; Business Finance 320, Legal Environment 340, Management Fundamentals 300, Marketing 370, Statistics 200, and Management Problems 499 (or Business Policy 652).


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.

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

5. On-Campus Requirements. Ten semester hours of coursework must be taken on campus.

MASTER OF SCIENCE IN BUSINESS

The Master of Science program permits the student to specialize in a specific area of business such as Accountancy, 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 admission and course requirements are determined by the department.

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

Program requirements:

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

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

Business Education

L. Michael Moskowis, Adviser

The Master of Arts in the Teaching of Business Education combines professional education courses with advanced preparation in a functional area of business. The professional education sequence offered by the College of Business and the Department of Teacher Education 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, and the socio-business core area).

In addition to the professional education sequence the eighteen hours of electives chosen in consultation with the graduate adviser allows graduate students to select courses with in the various College of Business departments or areas: Administrative Services, 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 education supervisory and administrative positions.

Programs may also be planned in which students fulfill requirements of secondary teaching certification and/or office vocational certification while completing the master's program.
Chemistry

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

- August 29, 1974 — 9:00 a.m. — Analytical; 1:00 p.m. — Organic
- August 30, 1974 — 9:00 a.m. — Physical
- January 3, 1975 — Any
- May 2, 1975 — Any
- June 27, 1975 — Any
- August 28, 1975 — 9:00 a.m. — Analytical; 1:00 p.m. — Organic
- August 29, 1975 — 9:00 a.m. — Physical

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

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

1. Nine hours of 600-level courses from at least three of the following divisions, including one course in the division of the Master's Thesis: Analytical, Biochemistry, Inorganic, Organic and Physical.
2. CHEM 505, Chemical Literature.
3. CHEM 506, Chemical Laboratory Safety.
4. CHEM 520, Instrumental Methods in Chemistry.
5. CHEM 601, Graduate Seminar. (Attendance required every semester).
6. CHEM 700, Master's Thesis (6 hrs.).

Communication Arts and Sciences

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

Eligibility for Admission

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

Degree Requirements

1. At least thirty hours must be completed in communication and cognate courses. Selection is to be made in consultation with the student's adviser.
2. Consultation must be carried on by the student and his adviser each term the student is enrolled.
3. A Master's Thesis (6 hrs.) is optional.

MASTER OF ARTS IN TEACHING OF SPEECH COMMUNICATION

This degree is sponsored by the Departments of Communication Arts and Sciences and Teacher Education. It is intended as a generalist program for those students who plan to teach at the elementary, middle, or secondary level of education.

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

Degree Requirements:

1. Nine hours selected from the Educational Core:
   a. TEED 601, Introduction to Research in Education
   b. TEED 602, School Curriculum or TEED 622 Middle-Junior High School Curriculum
   c. TEED 603, Social and Philosophical Foundations
   d. TEED 604, Psychological Foundations
2. Fifteen hours in Communication Arts and Sciences
3. Six hours of electives from either professional and/or Communication Arts and Sciences.
4. Consultation with an adviser each term the student is enrolled.
5. A Master’s Thesis (6 hrs.) is optional.

Computer Science

Jack R. Meagher, Kenneth L. Williams, Advisers
A. Bruce Clarke, Department Chairman

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

This M.S. program is a professional program designed to prepare students to take a position in computer organization and systems operation in the research and
MOSler's Degree Programs

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

For admission to this curriculum, candidates must have completed an undergraduate program containing courses equivalent to Mathematics 274, 330, 506, and 570. If the student's undergraduate program does not include these courses or their equivalents, he will be required to complete them as an additional program requirement.

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

1. MATH 507, 530, 571.
2. Twelve hours of computer science courses selected from MATH 508, 509, 606, 607, 680, 681, 682.
3. Nine hours of advanced computer application selected from MATH 603, 608, 609, 562, 662, 712, EET 650, and MGMT 630.

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

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

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

Counseling and Personnel


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

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

The curriculum in Counseling and Personnel requires the following:

1. Six hours of core courses in Teacher Education, including Introduction to Research in Education 601.
2. A minimum of six hours of cognate courses in areas such as: sociology, psychology, economics and vocational education depending upon educational background, vocational experiences and career objectives.
3. Twenty-three hours in one of the four areas of concentration:

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

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

**Distributive Education**

The master's 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.

Upon completion of the master's degree program in Teaching of Distributive Education, the student must be qualified to hold the general secondary provisional certificate and vocational endorsement as a distributive education teacher-coordinator.

The following criteria will be used to determine the acceptability of a candidate's qualifications for vocational certification: (1) Occupational experience; (2) Subject matter background; and (3) Professional vocational-technical courses.
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1. **Occupational Experience:** The evaluation of occupational experience of an applicant for vocational authorization or endorsement shall be based on the recency and relevancy of that work experience as follows:

   a. The applicant shall have two years (4,000 clock hours) of work experience in the occupations for which he will be preparing students. This work experience shall be of such nature that he will be able to design instruction that is realistic for each of the distributive occupations normally included in a distributive education program.

   b. The work experience shall have been *completed* no more than five years prior to the application for initial vocational endorsement or authorization.

   c. Part-time work experience shall be credited to the applicant on the basis of number of hours applicant worked.

   d. 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 advisor is recommended.

2. **Subject Matter Background:** The following requirements must be met:

   a. Bachelor's degree with a Secondary Provisional General Teaching Certificate. Students lacking this certification may enroll in the graduate program with the understanding that this requirement will be fulfilled.

   b. 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.

3. **Professional Vocational-Technical Courses:** These courses will be a part of the fifteen semester hour major concentration of courses and should be planned in consultation with the graduate advisor in the Distributive Education Department.

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.

**Earth Science (Dept. of Geology)**

Richard N. Passero, Adviser

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

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

**Program requirements:** A minimum of thirty hours is required for the degree including:
Master's Degree Programs


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

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

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

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

Economics  
Robert S. Bowers, Adviser

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

Program requirements for the Master of Arts degree in Economics:

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

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

3. Pass written and oral comprehensive examinations.

Education

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

The curricula are planned to provide professional preparation for students who are interested in teaching, administration, and certain specialized positions in elementary and secondary schools and community colleges. With the exceptions noted below, students applying for candidacy in the programs within the College of Education are expected to have completed a minimum of fifteen hours of undergraduate work in professional education. In some instances, students may present equivalent preparation which meets the minimum requirements for teacher certification, when such preparation is approved by the College of Education.
Master's Degree Programs

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 Educational Leadership.

2. The fifteen hours of undergraduate preparation in professional education are not required in the Counseling and Personnel Services curriculum chosen by individuals interested in the ministry, business counseling, and counseling positions and social services occupations.

Educational Leadership

Advisers: Harold W. Boles, James A. Davenport, Gerald C. Martin, Ted Ploughman, Rodney W. Roth, Daniel L. Stufflebeam, William P. Viaill, Charles C. Warfield, Donald C. Weaver

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

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

<table>
<thead>
<tr>
<th>Area</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration and Supervision</td>
<td>8-13 hrs.</td>
</tr>
<tr>
<td>Human Relations</td>
<td>8-11 hrs.</td>
</tr>
<tr>
<td>Concept Formation</td>
<td>6-9 hrs.</td>
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<tr>
<td>Research</td>
<td>At least 3 hrs.</td>
</tr>
<tr>
<td>Independent Study</td>
<td>0-3 hrs.</td>
</tr>
<tr>
<td>minimum</td>
<td>30 hrs.</td>
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</tbody>
</table>

At least nine 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 person for a position as a principal of a primary, elementary, middle, junior high, or senior high school, or a manager or director of a proprietary school.

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

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

* Because of the different emphasis, the program for a Director of Curriculum may have a minimum of hrs. in each of the Administration and Supervision and Human Relations area and a maximum of fifteen hours in Concept Formation.
English

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 advisor at the earliest opportunity concerning their program of study.

Required courses in the program are ENGL 660, Methods of Research; ENGL 661, Seminar; and ENGL 668, Literary Criticism. All other courses in the student's program are selected by the student and the graduate advisor 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 advisor.

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 Teacher Education. All other courses in the student's program of study are selected by the student and the graduate advisor 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 general informational booklet titled "M.A. Programs in English," which is available from the Department of English or the English graduate advisor.

Geography

Oscar H. Horst, Adviser

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

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

Program requirements:

1. Thirty hours of graduate credit in Geography and cognate fields with at least twenty hours in Geography.
2. Completion of required courses: GEOG 661, 664 and 668.
3. Completion of at least two courses with a maximum of ten hours in one of the six following areas of concentration: Regional, Economic, Urban, Cultural-Historical, Political, and Physical Geography.
4. Completion of 2-6 hours at the 700 level; the minimum requirement thus is a 2-hour research paper.
5. Successful completion of written qualifying examinations prior to application for candidacy.
6. Demonstrated competence in:
   a. General physical and cultural patterns
   b. Documentary analysis
   c. Philosophy of Geography
   d. Cartographic presentation of data
   e. Field procedures

Geology

Richard V. McGehee, Adviser

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

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

Program requirements:

1. Thirty semester hours of graduate credit in Geology and related areas (in other sciences and mathematics), with at least twenty-one hours in Geology. Up to nine hours in related areas may be chosen with the consent of the graduate adviser.
2. GEOL 660, Seminar in Earth Science. Participation is required each semester in residence. Each student must make one formal presentation each year.
3. Satisfactory completion of GEOL 700, Master's Thesis (6 hrs.).
4. Pass a comprehensive oral examination. Failure of the final oral comprehensive examination may be followed by a second oral or a written examination.

History

Lewis H. Carlson, H. Nicholas Hamner, Advisers

The Master of Arts degree in History is designed to qualify the student for advanced research into and the teaching of history.

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

1. Earn thirty hours of graduate credit, of which twenty hours must be in history and ten hours may be in departments approved by the graduate adviser.

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

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


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

Home Economics

Betty Taylor, Adviser

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 the whole area of Home Economics for the person who may have specialized in: a) Foods and Nutrition, b) Textiles and Clothing and c) Family Relationships. The student may or may not have specialized in one of these areas but will have had the foundation courses to pursue them at the graduate level and could broaden the scope and depth of understanding in one of the three areas. The degree may be used as a foundation for continued graduate work leading to a doctor's degree at another institution.

The program is planned for the following students:

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

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

3. The Home Economist in Extension;

4. The School Lunch Manager;

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

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

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

MASTER OF ARTS IN TEACHING OF HOME ECONOMICS

The Master of Arts in Teaching of Home Economics is designed for a person with a Bachelor of Science or Arts in Home Economics Education. The minimal requirements for the Master of Arts degree in the Teaching of Home Economics include the completion of nine semester hours of course work offered in the Department of Teacher Education, fifteen semester hours in courses in Home Economics, and six hours of electives.

Industrial Education

The Departments of Industrial Education and Teacher Education offer a Master of Arts degree program in the Teaching of Industrial Education. This degree program is designed for students who have an earned bachelor's degree in Industrial Education with a major and/or minor in industrial arts and/or associated technical fields, and who have completed professional preparation in education, including directed or supervised teaching. The basic 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 sufficiently flexible to provide preparation for administrators, supervisors, coordinators, and for certain other specialized positions in Vocational-Technical programs.

Minimal requirements for the Master of Arts degree in the Teaching of Industrial Education are:

1. Completion of nine semester hours from Teacher Education core courses. (IEED 601, Introduction to Research in Education is required.)

2. Completion of fifteen semester hours from Industrial Education Department (IEED 545, 641 or 615 and 643 are required.) (Remaining nine hours to reflect the student's career goals.)

3. Completion of six semester hours of electives directed toward career goals to be selected by the student in consultation with the graduate advisor for Industrial Education.
International and Area Studies

Fredric J. Mortimore, Chairman of Advisers

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

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

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

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

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

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

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

Modern and Classical Languages

Roger L. Cole, Chairman of Advisers

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

Admission requirements: An undergraduate major of thirty semester hours or the equivalent in a language.
Master's Degree Programs

Program requirements:

1. Completion of thirty semester hours of graduate study of which twenty to thirty are in one language. Six hours toward the requirement in Language study may be satisfied at the option of the Department by the presentation of an acceptable Master's Thesis (6 hrs.). Furthermore, a maximum of ten hours of graduate study may be applied in appropriate cognate fields. Selection of cognate courses is made by the adviser after determination of the candidate's specific needs and interest.

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

Librarianship

Jean E. Lowrie, Eleanor R. McKinney, Advisers

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

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

The requirements for the degree of Master of Science in Librarianship are as follows:

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

   - **Required Courses:** LIB 510, 512, 530, 600, 622, 629.

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

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

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

Specialist Degree Programs in Librarianship

The School of Librarianship offers post-master's degree programs for those interested in administration of the school media center, the public library, and libraries in community colleges. See Specialist in Arts in Librarianship.

Additional information is contained in the Bulletin of the School of Librarianship, which may be requested from the School's office in Waldo Library.
Mathematics

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

MASTER OF ARTS IN MATHEMATICS

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

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

In addition to the general admission and degree requirements, the M.A. student in the field of Mathematics must satisfy the following:

1. Have completed, with satisfactory grades, an undergraduate major in mathematics, or equivalent. If the student's undergraduate program in Mathematics does not meet approved standards, he may be required to elect additional courses or otherwise satisfy the requirements of the department.

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

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

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

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

For students specializing in applications of Mathematics, the preceding requirements can be modified somewhat. Students interested in a M.S. program in Statistics, Computer Science, or Operations Research 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 Chairman, or one of the Program Advisers.

MASyERS OF ARTS IN TEACHING OF MATHEMATICS

Robert C. Seber, Adviser

The Teaching of Mathematics curriculum is offered cooperatively by the Mathematics and Teacher Education 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: 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 three from the four three hour courses:
   TEED 601, Introduction to Educational Research
   TEED 602, School curriculum
   TEED 603, Social and Philosophical Foundations of Education
   TEED 604, Psychological Foundations of Education

3. Approval of the Teaching of Mathematics curriculum adviser.

In meeting these program requirements an effort is made to select courses that deal with concepts and skills related to central themes in secondary school mathematics programs. These themes are given 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.

Medieval Studies

John R. Sommerfeldt, Adviser

The curriculum leading to the degree of Master of Arts 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.

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

2. The preparation of an acceptable Master's Thesis (6 hrs.) under the direction of a thesis advisory committee.

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

4. Pass the comprehensive examination given by a committee appointed by the Director of the Medieval Institute, in consultation with the student's thesis advisory committee.

Music

MASTER OF MUSIC

Donald P. Bullock, Adviser

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

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

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

Refer to the Music Supplement for more detailed descriptions of the major areas of concentration.
MASTER OF ARTS IN TEACHING OF MUSIC

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

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

Occupational Therapy

The Master of Occupational Therapy (MOT) degree program is designed to prepare the qualified college graduate, who has a degree in a curriculum other than occupational therapy, for the profession of occupational therapy. This is an accredited program and graduates are qualified to take the American Occupational Therapy Registration Examination.

One year of work experience in any area, following receipt of the baccalaureate degree is necessary for admission to the program. Prior academic course work in abnormal psychology, human physiology, and child development or human growth and development is desired.

In general, the requirements for the degree are:

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

2. Completion of thirty semester hours of approved graduate courses in the following areas:
   a. Eleven hours from the following courses in Occupational Therapy: OT 686, Seminar in Occupational Therapy; OT 633, Administration of Occupational Therapy; OT 710, Independent Research.
   b. Ten hours selected with the help of the graduate adviser in related fields or areas of specific interest. Three hours in statistics must be included if not taken at the baccalaureate level.
   c. OT 712, Professional Field Experience, (internship of six months) taken prior to the final semester on campus.
   d. TEED 601, Introduction to Educational Research.

Admissions to this program are closed through the 1974-75 academic year. Limited admissions will be accepted September 1, 1974 through November 1, 1974 for the 1975-76 academic year, which will begin with Spring Session. No applicants will be considered prior to September 1, 1974.
Operations Research

Franklin K. Wolf, Program Director

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

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

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

Certification for graduation shall include the preparation of an oral presentation of his project and an examination covering the basic areas in which he has studied.

Paper Science and Engineering

Raymond L. Janes, Adviser

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

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

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

1. A minimum of fifteen hours of paper technology selected from these twenty-four hours of offerings: Pulp and Paper Engineering 560, Instrumentation and Process Control 590-591, Surface and Colloid Chemistry 600, Paper, Printing, and Ink 620, Coating Rheology and Film Formation 640, Mechanics and Optics of Paper and Fibers 660, High Polymer Topics 680.
2. Satisfactory completion of a Master's Thesis (6 hrs.) based on either an experimental or theoretical topic, under the guidance of a Committee selected by the department.

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

Physical Education

The Departments of Physical Education offer a graduate curriculum which prepares teachers, coaches, supervisors, research personnel, and administrators to assume leadership roles in their respective areas.

To be admitted to a regular degree program, a candidate for the Master of Arts degree in the Teaching of Physical Education must have successfully completed an undergraduate major or a minor in Physical Education. Each student will plan a program cooperatively with the advisor, taking into consideration the following requirements:

1. The master's program requires the successful completion of a minimum of thirty hours of work beyond the bachelor's degree.

2. A minimum of fifteen hours to a maximum of twenty-one hours of this program may be elected in the Physical Education departments.

3. Nine hours must be earned in the required core courses in the Department of Teacher Education and six hours may be elected in departments of the student's interest or may be transferred from an accredited institution.

Physics

The Department of Physics offers a graduate program leading to the Master of Arts degree in Physics. Participation in research is an important part of the program and occurs in any of three major fields:

a. Theoretical physics — for example, classical liquids, nuclear structure, nuclear reactions, and classical fields.

b. Experimental physics — for example, atomic physics, optical spectroscopy, electron paramagnetic resonance, positron annihilation, and nuclear physics. Equipment available for experimental research includes a 50 keV proton accelerator, a vacuum ultraviolet spectrometer, an EPR spectrometer, and the only 12 MeV tandem Van de Graaff accelerator in this state.

c. Computer and instrumentation physics, including the use of PDP-10 and PDP-15 computers.

This program requires a minimum of thirty semester hours of graduate credit, which must include the following:

1. Twelve hours of core courses in physics, namely: Quantum Mechanics 1622, Statistical Mechanics 624, Classical Mechanics 630, and Electricity and Magnetism 662. Substitutions for these courses may be made only with the approval of the graduate adviser.
2. Twelve additional hours from Physics, Mathematics, or other departments chosen with the consent of the graduate adviser.

3. Satisfactory completion of a Master's Thesis (6 hrs.) based on one of the three major research areas listed above, under the guidance of a committee of the graduate faculty in Physics. The committee may require an oral defense of the thesis before approving it for submission to The Graduate College.

Graduate students are expected to attend the Graduate Colloquium, which is a program for graduate students and Physics staff members, presented by members of the WMU Physics staff and visitors from other institutions on topics related to their research specialties. Graduate students are also expected to attend the Physics Public Lectures, a series of talks on topics of general interest in Physics and related fields.

Political Science

Ernest E. Rossi, Adviser

The M.A. 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 for different career goals: (1) positions in the public service and quasi-public agencies; (2) further professional training in Political Science and related professions, as Law; (3) teaching positions in high schools and community colleges; (4) general positions in the business world.

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

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

Requirements for the thesis program:

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

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

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

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

5. Pass an oral examination on the thesis and on the adequacy of the student’s preparation in his political science program.
Requirements for the non-thesis program:

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

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

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

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

Psychology

David O. Lyon, Adviser

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

Admission requirements:

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

2. Graduate Record Examination-Aptitude Test.

3. Miller Analogies Test.

Program requirements:

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

2. Satisfactory completion of PSY 700, Master's Thesis (6 hrs.), except for School Psychology. Professional seminars may be substituted for the thesis in the clinical and industrial programs with the permission of the adviser.

3. In addition to the twelve hours specified in 1 and 2 above there are further requirements determined by the area of specialization elected by a student. In general a program of studies will be specified by the graduate adviser and the major professor to produce appropriate competence in the given area. Specialization requirements include:
   a. Experimental Analysis of Behavior — A minimum of eighteen credit hours in basic behavioral processes, laboratory techniques, and data analysis including Advanced Statistics 634. Areas of concentration include animal learning, operant behavior, physiological psychology and perceptual processes. This program is designed to prepare a student for doctoral training in experimental psychology.
   b. Applied Behavior Analysis — A minimum of eighteen credit hours with nine hours selected from basic behavioral processes, laboratory technology and data analysis, including Advanced Statistics 634. The remaining nine hours should be selected courses in behavior modification and theory, technology and application. This program is designed to prepare a student for doctoral training in behavior modification.
c. Clinical Psychology — A minimum of forty-eight credit hours including twenty-four hours in the area of specialization, twelve hours of professional internship experience and twelve hours of general psychology, including Advanced Statistics 634. The area of specialization may encompass a broad spectrum of clinical theory and application, including substance abuse, or may be specific to the theory and techniques of behavior analysis and modification. An appropriate substitute for the thesis may be arranged with the consent of the graduate adviser. The clinical program may be designed to accommodate either students who plan to engage in professional work at a masters' degree level of proficiency or those interested in continuing graduate studies for a doctorate in the clinical area.

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

Public Administration

The multi-disciplinary graduate-professional program in public administration leading to the Master of Public Administration degree is designed to provide professional training for graduate students and mid-career professionals with career interests as public administrators at the state and local levels of government.

The multi-disciplinary focus is designed to allow the student to utilize his special talents, skills, and experience while becoming familiar with the knowledge and skills appropriate for administrative leadership positions in public agencies. While the program is designed to emphasize program requirements of local and state government, it is sufficiently flexible to meet the needs of students for training for a wide variety of career positions in public and public related agencies. Cooperating in the program are the Departments of Accountancy, Economics, Geography, Geology, Management, Political Science, Psychology, and Sociology and the School of Social Work.

Admissions Requirements: Students will be admitted to the program with undergraduate work from a variety of academic disciplines or majors and who meet the general standards set forth for admission to The Graduate College.

The Master of Public Administration program is a forty-five semester hour program. A maximum of fifteen hours may be waived with the approval of the Program Director when degree requirements have been met through prior course work and or work experience. The program is planned so that a full time graduate student could complete the on campus portion within a period of twelve months or three semesters or less and the off campus internship in one additional semester or four months. Part-time and mid-career students could complete the program in an extended time period. Student programs will be planned in consultation with the Program Director with consideration given to the career objectives of the individual student. Ordinarily the student will be required to complete the following four stages or types of experience:

1. a. required professional core (8-9 semester hours), consisting of courses
in the foundations of public administration, the political environment of public administration, and organizational theory and behavior;

2. a technical core (12-21 semester hours), which includes courses in accounting and budgeting, public finance, public law, public personnel, and data processing;

3. a problem and application area (6-12 semester hours), which gives the student the opportunity to develop an understanding of a particular type of governmental activity, such as business and government relations, community conflict, land use planning, local government, natural resource management, environmental studies, social services and urban administration. Other problem and application areas may be developed as needs and demands indicate;

4. professional practice (12 semester hours), consisting of the following three activities: first, a seminar on professional issues in public administration; second, a field experience as an intern with some public agency for a four month period; and third, an internship seminar, taken concurrently with the field experience to provide an opportunity for the student to link the theory and skills in earlier course work to the field experience.

School Psychology

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

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

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

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

Science

The Science Division (Departments of Biology, Chemistry, Geography, Geology, Physics and Psychology) of the College of Arts and Sciences and the Department of Teacher Education of the College of Education offers a graduate program leading to the Master of Arts in the Teaching of Science. The program is designed for both elementary and secondary school science teachers who wish to expand
their preparation in the sciences and to enhance their teaching abilities.

The minimum entrance requirement to this degree program is an undergraduate minor in one of the science departments listed above, in addition to the general entrance requirements for all Master of Arts degrees in the field of Education as described under Education in this section of the Bulletin.

The Master of Arts in the Teaching of Science requires the completion of a minimum of nine semester hours of course work from the Department of Teacher Education, a minimum of fifteen semester hours of science courses from one or more of the departments of the Science Division and an additional six hours from either Teacher Education and or one of the sciences. Each student's program is prepared on an individual basis in consultation with the graduate adviser for the program.

Social Sciences

William S. Fox, Adviser

The curriculum 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 Teacher Education.

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 in gaps and weaknesses in the undergraduate program. In addition, the program can meet the needs of teachers for a "planned program" necessary for continuing certification to teach in the schools of Michigan. It provides course work in a variety of social science disciplines which can be used to expand employment opportunities and meet accrediting agency requirements to teach social studies.

Admission requirements:

1. Fifteen hours of undergraduate work in professional education or equivalent.
2. Twenty-five hours in the combined disciplines of Anthropology, Economics, 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 Teacher Education.

1. TEED 601, Introduction to Research in Education.
2. TEED 602, School Curriculum (Students who are teaching or planning to teach in Middle or Junior High School should substitute TEED 622).
3. TEED 603, Social and Philosophical Foundations.
4. TEED 604, Psychological Foundations of Education.

The remaining twenty one semester hours of course work is 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

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

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

There are five major content areas in the curriculum.

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

Criteria for admission:

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

1. Evidence of adequate academic preparation for graduate study in social work. This includes consideration of both undergraduate performance and area of study. (Undergraduate preparation in the social and behavioral sciences and social work-social welfare is given particular attention.)
2. Evidence of personal qualifications considered desirable for successful social work practice. These include motivation for a human service profession, personal maturity, and leadership ability.

Degree requirements:

1. The successful completion of sixty hours of credit, graded on a credit/credit basis, is required for the master’s degree in Social Work. This will include the following course credits:

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

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

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

Sociology

Charles B. Keely, Lewis Walker, Advisers

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

Eligibility for admission:

1. Students should have completed a minimum of twenty-four semester hours in undergraduate work in the social sciences, of which fifteen semester hours should be in sociology, including courses in theory and research methods.
2. Students should have a grade-point average of 3.0 or better in undergraduate sociology courses.
3. If these requirements have not been met on the undergraduate level, the student may be required to complete additional course work as a condition of admission.
4. Three letters of recommendation, from academic or professional sources, must be sent to the departmental Graduate Admissions Committee.

Degree requirements:

1. Complete at least thirty hours of graduate credit, including thesis hours, selected in consultation with the master's adviser. Twenty to twenty-four hours must be in sociology courses with a 3.0 average; up to ten may be approved cognate areas.
2. Complete an original thesis or essay, using approved methods for investigation of a sociological topic. The thesis is recommended for students planning, and considered qualified for, doctoral studies. The thesis provides six hours of course credit, the essay two hours of credit toward the sociology credit requirements.
3. Pass an oral examination on the thesis or the essay.

Financial Support

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

Special Education

Advisers: Emotionally Disturbed — Abraham Nicolaou, R. Hunt Riegel; Mentally Handicapped — Lawrence Ashbaugh, Alonzo Hannaford, Elizabeth Lawrence, Donald Sellin; Crippled and Homebound — Donna Henderson; Learning Disabilities — Robert Howell.

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 to qualify for supervisory or leadership roles in special education.

Prerequisites:

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

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

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

   TEED 312  Teaching of Reading  
   SPED 530  Education of Exceptional Children  
   SPED 533  Diagnostic and Prescriptive Techniques in Special Education  
   SPED 534  Curricular and Instructional Provisions for Exceptional Children and Youth  
   SPED 588  Behavior Disorders in School-Aged Children and, one of the following:

      SPED 532  Nature and Needs of the Mentally Handicapped  
      SPED 543  Nature and Needs of Crippled and Homebound Children  
      SPED 589  Program and Intervention Strategies for the Socially and Emotionally Maladjusted

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

3. Special Education personnel who wish to obtain professional preparation which will enable them to serve in leadership roles, are expected to have earned an undergraduate degree in one of the categorical areas of exceptional children and have special class teaching experience. Major emphasis in this program will be placed on research, supervision and administration in special education.
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, fifteen of which must be in Special Education.
2. Six hours of core courses in Education, including HED 601, Introduction to Research in Education.
3. Nine hours of credit in courses offered by departments outside the College of Education.
4. A comprehensive written examination administered after the student has completed a minimum of twelve 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

Robert L. Erickson, Harold L. Bate, Advisers

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

Admission requirements:

1. Completion of an undergraduate major in Speech Pathology, Audiology, Psychology, Sociology, Education, or other curriculum accepted by the department.
2. Accumulation, during the final two years of undergraduate work, of a point-hour ratio of at least a “B” in all speech pathology and audiology registrations.
3. The undergraduate preparation must include twelve hours in courses that provide fundamental information applicable to the normal development and use of speech, hearing and language. Among these twelve hours should be at least one course in phonetics, one course in anatomy and physiology of the speech and hearing mechanisms, one course in speech and language development, and one course dealing with the science of speech and hearing.
4. The undergraduate preparation also must include a minimum of twelve semester hours in courses which provide basic information regarding the
diagnosis and treatment of voice problems, articulation disorders, stuttering, impaired hearing, and organic speech disorders in children.

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

Program requirements:

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

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

2. Completion of at least one graduate seminar registration.

3. Students who desire Michigan Teaching Certification should contact the Certification Office, College of Education, Sangren Hall.

4. The student must have completed satisfactorily a total of at least 300 hours of supervised clinical practicum experience (including those hours, if any, accumulated as an undergraduate). This experience must include: work with pre-school, school age, and adult cases; group as well as individual therapy; diagnostic work; and work with a variety of specified disorders.

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

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

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

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

Statistics

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

Two types of programs are available in this area:

Option I. Master of Arts (Theoretical). This option combines a regular M.A. program in Mathematics with substantial work in statistics. A graduate from this option is well prepared to proceed into a doctoral program in statistics, to teach basic statistics at the college level, or to use statistics professionally.
In this option the student must complete the regular M.A. in Mathematics requirements with a program including the following courses: MATH 660, 665, and three of the following: 661, 662, 663, 664, 667, 669.

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

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

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

1. MATH 506, 530, 562, 571, 662, and 712.
2. Two of the following: MATH 660, 661, 663, 664, 665, 667, 669.
3. One cognate course.

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

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

**Teacher Education**

**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 Teacher Education, 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**

David H. Curl, Kenneth F. Dickie, Advisers

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

Requirements for the degree:

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

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

   a. **Educational Communications and Technology:** Most programs will include TEED 549, Audiovisual Media II; TEED 641, Instructional Development; and TEED 648, Instructional Media Seminar. Other work, including internship and related courses from outside the College of Education, will be selected to meet the professional goals of the student.

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

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

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

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

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TEACHING IN THE COMMUNITY COLLEGE

Owen B. Middleton, William H. Kanzler, Advisers

The requirements for this curriculum including a minimum of thirty hours of graduate level courses in professional education and the student's major and minor fields distributed as follows:

1. Seven hours made up of the following professional courses: TEED 601, Introduction to Research in Education; TEED 650, Characteristics of the College Student; and TEED 690, The Community College.

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

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

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

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

Requirements for the degree are:

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

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

TEACHING IN THE ELEMENTARY SCHOOL

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

TEACHING IN THE MIDDLE OR JUNIOR HIGH SCHOOL

Clara R. Chiara, Sarah Jane Stroud, Advisers

Requirements for the degree: Thirty hours of graduate work are required as minimum for graduation.

1. All students in this curriculum are required to take:
   a. TEED 622, Middle-Junior High Curriculum
   b. C-P 580, Principles and Philosophy of Guidance
Master's Degree Programs

2. Select six to nine hours from:
   a. TEED 601. Introduction to Research of Education
   b. TEED 603. Social and Philosophical Foundations of Education
   c. TEED 604. Psychological Foundations of Education
   d. TEED 615. Seminar in Teaching of Reading

3. Elect six to eight hours in major or minor areas of concentration with approval of the advisor.

4. Elect six to eight hours in professional education or major minor areas of concentration with approval of the advisor.

TEACHING OF READING

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

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

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

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

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

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

CURRICULA IN TEACHING

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

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

2. Fifteen hours in the major or related academic fields.
3. Six hours of electives, some or all of which may be professional education or the major field.

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

Teaching in the Elementary School

Teaching in the Middle or Junior High School
Advisers: Clara R. Chiara, Sarah Jane Stroud

Teaching of Art
Adviser: Harry S. Helner
Prerequisite: Portfolio required, request criteria from Art Department (general level of competency now required is equivalent to a major in Art.)

Teaching of Business Education
Adviser: L. Michael Moskovis
Prerequisite: Minor in business or the equivalent

Teaching of Distributive Education
Adviser: Raymond A. Dannenberg
Prerequisite: Must qualify for a vocational certificate as a coordinator

Teaching of Home Economics
Adviser: Betty Taylor
Prerequisite: Minor in Home Economics

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

Teaching of English
Adviser: John H. Stroupe
Prerequisite: Minor in English

Teaching of Music
Adviser: Donald P. Bullock
Prerequisite: Major in Music

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

Teaching of Science
Adviser: Paul E. Holkeboer
Prerequisite: Minor in one department of the Science Division
Master's Degree Programs

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

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

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

Technology

Frank S. Scott, Chairman of Advisers

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

Admission requirements:

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

Program requirements:

1. Complete a minimum of thirty semester hours of graduate work, including the course IEGM 640, Introduction to Technology.
2. The academic program consists of four parts: a) Professional-Technical: One-half of the student's work is concentrated in a meaningful sequence of graduate courses in his speciality. A formal technical report completes this requirement; b) Leadership Resource Management: One-third of the course work is devoted to graduate studies concerned with leadership skills and techniques of resource management; c) Background and Cognate Course: The remainder of the course work is devoted to graduate studies pertinent to current industrial problems; d) Oral Presentation. Each candidate presents a significant topic related to his graduate work during the last semester or session.
3. Show evidence of practical work experience in his major field of pursuit. Those who do not have this experience would be expected to spend a minimum of one semester (two to three hours credit) of supervised internship in industry involving his field of specialty.
SECTION III

Specialist Degree Programs and Requirements

GENERAL REQUIREMENTS FOR A SPECIALIST DEGREE

1. Admission  (See Calendar of Events for application deadline.)

   a. See specific program description to determine the minimal entrance requirements. The requirements range from a bachelor's degree to a master’s degree.
   
   b. Official transcripts of all courses taken beyond high school showing the degrees earned.
   
   c. A point-hour ratio of at least 2.6 (A=4.0) in the last two years of undergraduate work for all programs permitting entrance with bachelor’s degree. A point-hour ratio of at least 3.25 for all work undertaken beyond the bachelor’s degree.
   
   d. Attainment of satisfactory scores on the Aptitude and Advanced Tests of the Graduate Record Examination or an examination of a similar nature approved by the Graduate Studies Council. A satisfactory score usually is considered to be one that is at the fiftieth percentile or better.
   
   e. Attainment of a satisfactory score on the English Qualifying Examination. A non-credit English course must be passed by students failing the English Qualifying Examination. This requirement is waived for a student with an advanced degree.
   
   f. Acceptance by The Graduate College and a unit for a definite program of study.

2. Candidacy

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

3. Graduation — (See Calendar of Events for application deadline.)

   a. Diploma Application

       A diploma application must be submitted no later than three months prior to Commencement. Three Commencements are held per year: April, August, and December.
b. Minimum Credit Hours
Completion of a minimum of sixty hours of accepted graduate credit in a program of study approved by an adviser.

c. Residence Requirement
1. One semester on the campus of Western Michigan University, or
2. Students studying for Specialist in Education may substitute two consecutive summer sessions and enrollment during the intervening period.

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

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

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

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

h. Specialist Project
A student completing the specialist degree must present a Specialist Project (6 hrs.) in a form acceptable to the unit and The Graduate College. In writing his paper, a student should consult the most recent edition of Specifications for Master's Theses, Specialist Projects, and Doctor's Dissertations, available in the Campus Bookstore.

SPECIALIST IN EDUCATION PROGRAMS

Counseling and Personnel


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

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

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

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

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

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

Educational Leadership


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

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

| 11 hrs. * | Administration and Supervision |
| 12 hrs. * | Human Relations |
| 12 hrs. | Concept Formation |
| 3 hrs. | Research |
| 6 hrs. | Independent study (Internship or Field Project) |
| 16 hrs. | of electives |
| **60 hrs.** | **minimum Total** |

*Because of the different emphasis, the program for a Director of Curriculum may have a minimum of eight hours in each of the Administration and Supervision and Human Relations areas.*
At least twenty hours of the sixty hour minimum must be taken outside the College of Education. Whether credits earned in another degree program will be allowed will be determined by the adviser on an individual basis.

Curricula available within this degree program include:

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

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

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

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**School Psychological Examiner**

Galen Alessi, Adviser

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

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

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**Special Education**

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

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

**Program requirements:**

1. Twenty hours in core and related Education courses.
2. At least twenty hours in Special Education to include four to six hours in a field project or internship.

3. Twenty hours in related fields outside the College of Education such as Psychology, Anthropology, Sociology or similar disciplines.

4. Evidence of leadership potential to be presented at the time of the admission interview.

**SPECIALIST IN ARTS PROGRAM**

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

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

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

A student entering a specialist program must attain an acceptable score on the aptitude and advanced sections of the Graduate Record Examination. A student entering the program in Business Education may substitute the Admission Test for Graduate Study in Business.

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

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

The specific requirements of each program follow:

**Business Education**

I. Michael Moskovis, Adviser

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

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

**History**

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

Each student is expected to select three fields of concentration in History and one field of concentration in a related department approved by the graduate adviser. The fields in History are to be selected from the following: (1) Ancient, (2) Medieval, (3) Europe 1500-1815, (4) Europe 1815 to present, (5) United States to 1877, (6) United States since 1877, (7) Latin America, (8) Far East, (9) Russia and Eastern Europe, (10) Africa, (11) Special Areas. One of the three fields should be designated as a major field of concentration.

Although no specific number of hours is required in each field of concentration, the student will be expected to complete at least two seminars; to present an acceptable master's thesis or essay in the field of concentration; to pass a written and oral examination in two fields of concentration during the semester in which he completes thirty hours of graduate work and in the remaining two fields during the final semester or session. Students must complete HIST. 690, Historical Method; HIST. 692, Studies in Historical Literature; and the professional work required by The Graduate College.

**International and Area Studies**

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

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

Two distinct types of Sp.A. programs are available, both cross-disciplinary in scope and each reflecting the rationale upon which it is based. The comparative cross-cultural rests on the premise that certain crucial problems confronting
developing societies are best examined in a comparative context, utilizing data drawn from contrasting cultural milieu. The theoretical and practical problems inherent in conflict resolution, economic development, population control, diffusion and adaptation of modern technology, human resource development, public health, and directed social change — to name but a few — fall within this category. This program therefore, is designed to accommodate those students who desire to examine that broad range of problems the investigation of which requires both cross-disciplinary and cross-cultural perspectives.

The second program is based on the premise that cultural or geographical areas, as these are defined by the conventions of contemporary scholarship, constitute legitimate, feasible and necessary topics of cross-disciplinary research, study and teaching. Area programs are thus designed to serve the interests of students wishing to focus their scholarly interest on the cross-disciplinary study of a single geographical region (Africa, Asia, Latin America).

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

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

Students in both comparative, cross-cultural and area programs may be required to elect during either the first or second semester of study Social Science 605, Seminar in Area Studies.

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

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

A Specialist Project (6 hrs.) is required of each student enrolled in one of these programs; the nature of this Specialist Project will be determined by the student in consultation with his Guidance Committee.

Plan I. Comparative/Cross-Cultural Studies

Chester L. Hunt, Adviser

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

Departments in which students electing a Comparative Cross-Cultural emphasis may enroll for the master's portion of their program are limited, at present, to the following: Anthropology, Economics, Geography, Political Science, and Sociology.
Specialist Degree Programs

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

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

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

Plan II. Area Studies

Africa

Bruce M. Haight, Adviser

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

Departments in which students electing an African concentration may enroll for the master's portion of their program are limited, at present, to the following: Anthropology, Economics, Geography, History, Political Science, and Sociology.

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

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

The Specialist Project, (6 hrs.), depending upon its nature, may require the acquisition of foreign language or other research skills.

Asia

Robert L. Shafer, Adviser

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

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

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

The Specialist Project, (6 hrs.), depending upon its nature, may require the acquisition of foreign language or other research skills.
Latin America

Leila A. Bradfield, Adviser

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

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

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

The Specialist Project, (6 hrs.), depending upon its nature, may require the acquisition of foreign language or other research skills.

Librarianship

Jean E. Lowrie, Adviser

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

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

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

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

Mathematics

Stanislaw Leja, Chairman of Advisers
A. Bruce Clarke, Department Chairman

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

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

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

Science Education

Paul E. Holkeboer, Adviser

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

Each student's program will be planned in consultation with the Coordinator of Graduate Science Education and a representative of the major science area. The course work will be planned to prepare community college teachers of one of the areas listed above, in addition to lower division science courses. For example, a student electing the Physical Science option will be prepared, upon completion of the program, to teach Physical Science courses and lower division courses in Chemistry or Physics, depending upon his area of concentration. In all of the options the student will be required to take work from more than one science area and also in Mathematics where necessary. The maximum credit in Mathematics given within the program may not exceed twelve hours. The program generally includes between forty and forty-four hours of graduate level work in the sciences, including supporting mathematics where necessary. The professional education courses required are described under the general requirements for all Specialist in Arts programs. Each student is expected to complete a Specialist Project (6 hrs.). This project may be done in either the major science area or in Science Education and must be done under the direction of a faculty adviser and a committee. Students in this program are required to make an oral presentation of their project.

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

Doctoral Degree Programs and Requirements

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

Each student’s program will be planned by a committee selected in consultation between the student and the graduate adviser of the program in which the student wishes to study. A student will be expected to register for at least ninety hours of graduate level work while completing his program. The exact distribution of 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 they must identify their recommendation and the standard of proficiency expected for the approval of the Graduate Dean. Appropriate competency in language, statistics and computer programming has been established for each program and approved by the Graduate Studies Council.

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

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

GENERAL REQUIREMENTS FOR A DOCTORAL DEGREE

1. Admission (See Calendar of Events for application deadline.)
   a. See specific program description to determine the minimal entrance requirements.
   b. Transcripts of all courses taken beyond high school showing the degrees earned.
   c. For students who have completed at least twenty hours of graduate work, a point-hour ratio of at least 3.25 for all graduate work undertaken beyond the bachelor’s degree. The student who has a bachelor’s degree and less
than twenty hours of completed graduate work needs an overall 3.0 point-hour ratio in undergraduate work and a 3.25 for all completed graduate work.

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

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

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

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

2. Applicancy

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

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

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

3. Candidacy

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

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

b. Completion of all basic course requirements.

c. Completion of the research tool and/or language requirements.

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

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

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

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

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

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

d. Approval of a Doctoral Dissertation (15 hrs) by three members of the Doc-
Doctoral Degree Programs

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

All students admitted to the Ph.D. program in Chemistry must have passed three qualifying examinations, one in each of the fields of analytical, organic, and physical chemistry (See page 34 for schedule).

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

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

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

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

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


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

1. Pupil Personnel Services in Schools
2. Student Personnel Services in Higher Education
3. Counselor Education and Supervision, and
4. Agency Personnel Administration

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Curricula available within this degree program include:

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

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

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

*Because of the different emphasis, the program for a Director of Curriculum may have a minimum of eleven hours in each of the Administration and Supervision and Human Relations areas.
The Ph.D. program in Mathematics is designed to give the student a broad but intensive background in a variety of fields of mathematics, with special emphasis on some selected area in which the student will be prepared for, and participate in, creative mathematical research.

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

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

Each student must pass the Departmental Preliminary Examination. 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 specialty, in Analysis and in either Algebra or Topology (the choice being subject to the approval of the Department Doctoral Committee). A student must take each Preliminary Examination the first time it is offered following his completion of the required course work in that field. If the student fails an examination, he may be permitted to take a second examination in that area at a time designated by the Committee. A student may not take any part of the Preliminary Examination more than twice. A second failure in any area results in dismissal from the doctoral program. After successfully completing this examination the student is assigned a Dissertation Adviser and a Dissertation Committee who supervise his final research and dissertation.

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

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

The Department of Mathematics offers opportunities for financial support of graduate students through graduate assistantships, university fellowships and associateships, and other fellowships. Individuals desiring further information about such opportunities, or about the program as a whole, should contact the program adviser.
The Ph.D. program in Science Education is a broad science program requiring graduate work in three science areas. The program is designed to give depth in one science area, selected from Biology, Chemistry, Earth Science and Physics, and breadth in all the science areas in order to prepare graduates of the program to be (1) science supervisors, directors of science instruction or heads of science departments in large school systems or in state departments of education or (2) college instructors who are likely to teach science methods courses, science courses in National Science Foundation Institutes designed for science teachers who have less-than-adequate training in the science and general education interdisciplinary science courses or (3) college teachers of science methods courses and supervisors of student teachers of science or (4) researchers in the area of Science Education.

There are of course, other career opportunities which consist of combinations of some of the above, such as, a college teacher of science methods courses and a researcher in Science Education.

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

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

Science: Twenty hours of graduate credit in one of the following sciences: biology, chemistry, earth science or physics. Twenty hours of graduate credit in two other sciences (ten hours in each).

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

Dissertation: Fifteen hours

Seminar: Four hours

The remainder of the program will consist of research leading to the dissertation (GRAD 730) and additional work in science and or education if desired. Students are also required to demonstrate competency in two research tools and this is usually done by satisfactorily completing one or two courses in each research tool area. The two research tools generally elected by students in this program are statistics and computer science. In addition to graduate work in three sciences students are required to have had completed two semesters of undergraduate work in the fourth science. Also, an undergraduate minor is generally required in order to take graduate work in a science. Undergraduate deficiencies may be made up after admission to the doctoral program.

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

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

**Sociology**

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

The areas of concentration are important and active ones in the field. The combination of two areas, plus the individual area chosen provide students with valuable specialties and augment the basic doctoral training in the discipline as a whole.

**Eligibility for Admission:**

1. Applicants should have, or be completing, a master’s degree in sociology.
2. Applicants must have a grade-point average of 3.25 for all course work taken for graduate credit.
3. Applicants who hold a master’s degree in a related field may be admitted to the program but will be required to make up deficiencies without credit.
4. Three letters of recommendation, from academic or professional sources, must be sent to the departmental Graduate Admissions Committee.

**Degree Requirements:**

1. Complete approximately sixty hours of course and dissertation credits, beyond master’s work, selected in consultation with the doctoral committee.
2. Demonstrate competence in two research tools selected from: a foreign language other than English, research methodology, statistics, and computer programming.
3. Complete core, area, and dissertation requirements, as specified in the departmental Graduate Student Manual.

**Financial Support:**

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

Description of Graduate Courses

College of Applied Sciences

W. CHESTER FITCH,
Dean

Graduate Offerings:
Agriculture
Distributive Education
Electrical Engineering Technology
Engineering and Technology
Home Economics
Industrial Education
Mechanical Engineering Technology
Occupational Therapy
Paper Science and Engineering
Col/JeKe or A/'/'/ied Sciences


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

Agriculture (AGR)

Open to Upperclassmen and Graduate Students

520 Soil Science
2 hrs.
Treats soil as an organic resource. 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 and runoff, plant growth and land use as they are affected by these factors.

Distributive Education (DED)

Open to Upperclassmen and Graduate Students

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

570 Organization and Operation of Distributive Education
2 hrs.
Deals with the organization and operation of distributive education in relation to the total educational program. It is concerned with preparatory, cooperative and adult programs. Consideration is given to advisory committees and local, state and federal relationships.

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

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

This is a study of duties and responsibilities of the coordinator. Includes the organization of training programs, supervision of trainees on the job and the development of working relationships among the school, business and home.

598 Readings in Distributive Education 1-3 hrs.

Directed, individual study of topics and areas of interest which are not otherwise treated in departmental courses. Consent of department chairman.

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

710 Independent Research 2-6 hrs.

Electrical Engineering Technology (EET)

Hesselberth, Chairman; Professor Wilcox; Associate Professors Davis, VanderKooi

Open to Upperclassmen and Graduate Students

510 Advanced Circuits 3 hrs.

Advanced circuit analysis, steady state and transient responses, writing and solving intergrodifferential equations by classical methods and by Laplace transforms, network theorems. Fourier series analysis, complex frequency, poles and zeroes. Prerequisite: EET 310.

530 Electrical Power Systems 3 hrs.

Engineering considerations of generating equipment, transmission and distribution systems, switch gear and industrial power distribution. Prerequisite: EET 330.

560 Electrical Fields 3 hrs.

Electrostatics, including such topics as Coulomb's Law, Gauss' Law, Maxwell's equations, Laplace's and Poisson's equations, Faraday's Law, Stoke's Theorem, Ampere's Law. Use is made of vector calculus in rectangular, cylindrical and spherical coordinates. Prerequisite: EET 360 or MATH 223 or consent of instructor.

Open to Graduate Students Only

600 Electricity Electronics Seminar 2-3 hrs.

Studies of specific topics associated with the various aspects of electricity and electronics. Prerequisite: Consent of instructor.

610 Network Synthesis 3 hrs.

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

650 Pulse Circuits 3 hrs.

Analysis and synthesis of switching, waveshaping, and control circuits. Prerequisite: EET 320.
College of Applied Sciences

660 Microwave Techniques 3 hrs.
Co-axial lines, wave guides, oscillators, mixers, amplifiers, test equipment, and measurement. Prerequisite: EET 560.

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

Engineering and Technology (IEGM)

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

GENERAL ENGINEERING AND TECHNOLOGY

Open to Graduate Students Only

640 (AAS 600) Introduction to Technology 3 hrs.
A study of the development, role, philosophy, social responsibility, and current trends in technology. Changes in technical education, engineering, and industrial organization in American technology are emphasized.

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

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

INDUSTRIAL ENGINEERING AND SUPERVISION

Open to Upperclassmen and Graduate Students

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

502 Industrial Supervision 3 hrs.
The supervisor's duties, obligations and responsibilities in his industrial role. The practical application of behavioral science principles to the industrial environment. Not open to students with credit in IEGM 402.
505 Advanced Methods Engineering  
Synthesis of effective work methods using a predetermined basic motion time system. Methods-Time Measurement, standard data system development and administration. Prerequisites: IEanguard 305 or permission of instructor.

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

518 Engineering Valuation and Depreciation  
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: IEanguard 310 or equivalent.

Open to Graduate Students Only

600 Concepts of Supervision  
To study the concepts of supervision with particular design for those who have had little or no previous academic orientation to the principles, concepts, philosophy of industrial supervision.

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

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

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

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

Number in ( ) refer to courses listed in the 1972-73 catalog as Engineering and Technology (ENGT) courses.
ENGINEERING GRAPHICS TECHNOLOGY

Open to Upperclassmen and Graduate Students

538 (554) Product Design and Development 3 hrs.

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

METALLURGICAL ENGINEERING TECHNOLOGY

Open to Upperclassmen and Graduate Students

572 X-Ray Diffraction 3 hrs.

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

573 Engineering Materials 3 hrs.

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

584 (574) Casting Design 3 hrs.

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

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

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

Open to Graduate Students Only

670 (650) Advanced Physical Metallurgy 3 hrs.

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

Home Economics (H EC)

Taylor, Chairman; Professor Brennan; Associate Professor Holland

Open to Upperclassmen and Graduate Students

502 Textile Clinic 2 hrs.

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

Number in ( ) refer to courses listed in the 1972-73 catalog as Engineering and Technology (ENGT) courses.
504 The Socio-Psychological Aspects of Clothing 2 hrs.
A study of the social and psychological implication of clothing for the individual and the family. Clothing has many sociological and psychological implications for the person as an individual and as a member of society. This course would bring together some of the pertinent findings of these two fields as they relate to the total area of clothing, ranging from the individual's selection of clothing as an expression of personality and social status to the impact of the clothing and fashion industries on the national economy.

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

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

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

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

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

552 The Homemaking Center and the Equipment 2 hrs.
Consideration of fundamentals in planning laboratory and living area in terms of needs with special emphasis on built-ins, furnishings and equipment. Selected problems to be chosen by the individual.

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

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

602 Tailoring Techniques 2 hrs.
Specialized tailoring techniques in coats and suits. Problems in the use and performance of new textiles in clothing included.
604 Studies in Clothing and Textiles
A concentrated study of specifics within these fields dependent on the interest of the students.

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

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

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

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

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

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

622 (AAS 622) Occupational Laboratory Experience
A supervised experience program in a specific occupational area. Prerequisite HEC 642 or permission of instructor.

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

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

642 Occupational Education
Planning for Home Economics wage earning programs at the secondary and adult levels. (six areas.)
644 Curriculum Planning and Evaluation in Home Economics 2-4 hrs.
Consideration of changes in family living and society in relationships to the developmental needs of students as a basis for curriculum building in junior and senior high school. A study of the techniques of evaluation applicable in home economics. May be taken twice.

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

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

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

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

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

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

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

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

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

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.
Industrial Education (I ED)

Feirer, Head: Professors Bendix, Hutchings, Kohrman, Lindbeck, Risher; Associate Professors Bruce, Farnan, Klammer, Rayford; Assistant Professors Atkins, Gheen

Open to Upperclassmen and Graduate Students

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

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

506 (306) Residential Building Construction  
3 hrs.
Covers rough framing of residential buildings including prefabrication methods and on-site building. Classroom work and laboratory experiences familiarizes students with foundations, floor and roof framing, exterior doors, windows, roofing, siding, urethane insulation, other synthetic materials, and preparation for interior wall coverings, trim and cabinets. Prerequisites: I ED 100, or 200, and 405 (Can be taken simultaneously).

507 (501) Finish Carpentry and Cabinetmaking  
3 hrs.
Includes finished carpentry, built-in cabinets, and installation of prefabricated cabinets, wall coverings, finished flooring, floor coverings, fitting and hanging doors, interior trim and interior painting and finishing. Prerequisites: I ED 100 or 200.

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

520 Architectural Graphics  
3 hrs.
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, and cost estimate required. Drawings will be reproduced. Prerequisites: I ED 120, or equivalent, and 405 (can be taken simultaneously).

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

Basic experience in designing light commercial structures. Emphasis placed on planning, traffic flow, exterior design, materials, and structural details. Prerequisite: IED 520 or equivalent.

525 Architectural Perspective and Rendering

Intensive study of angular and parallel perspective. Emphasis placed on entourage and rendering techniques in preparing architectural presentation drawings. Prerequisite: IED 520 or equivalent.

538 Problems in Metalworking

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: IED 234.

540 Technical Education Methods


545 Safety Education for Industrial Teachers

Fundamentals of accident prevention in Industrial Education laboratories, treating legal responsibility of teachers, safety requirements in relation to equipment, safe guarding, and safe operation.

551 Halftone Photo Processes

Emphasis on halftone reproduction and related photo techniques. Posterization, duotones, basic color, and mechanical dropouts included. Prerequisite: IED 350.

552 Estimating

Continuation of Estimating 452. Special emphasis on use of Printing Industry Production Standards in pricing printed materials. Prerequisite: IED 452.

553 Printing Production Management

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.

560 Electricity-Electronics for Teachers

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

570 Arts and Crafts Techniques

Advanced laboratory experiences in internal plastic carving, leather work, model work and related crafts in conjunction with study of current technical literature in these areas. Written reports will be required. Course content adapted to individual needs.
572 Metric Conversion  
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  
Study of principles of machining wood, metal, and synthetic materials. Practice in installation, adjustment, preventive maintenance and conditioning of power equipment included. Emphasis given relationship between proper installation and condition to efficient machine operation.

575 General Industrial Arts Laboratory Organization  
Practical experience in drawing and planning, woodworking, metalworking, electricity, and craftwork required. Includes selection, development and preparation of materials and instructional media for multiple activity instruction at junior and senior high school levels. Prerequisite: Fifteen hours in Industrial Education.

578 Plastics Technology  
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, enforcing, foaming, coating, and general fabrication.

582 Applied Fluid Power  
Deals with fluid power development transmission and control systems. Laboratory experience requires application of fluid power to manual or electrically powered machines.

584 Automotive Technology for Teachers  
Deals with recent technical developments, and current practices in automotive instruction.

585 Advanced Automotive Technology for Teachers  
Designed for automotive teachers and advanced undergraduates. Deals with advanced technical developments, practices and problems unique to automotive instruction.

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

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

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

593 Arts and Crafts for Special Education Teachers 2 hrs.
Covers craft techniques in sketching, leather, wood, and related experiences. Emphasis placed on teaching procedures, methods, and materials.

594 Home Mechanics for the Blind 2 hrs.
Covers general knowledge and basic home mechanic skills in woodworking, electricity, plumbing, and general maintenance.

596 Consumer Automobile Principles 2 hrs.
A course in the methods and problems of providing automobile users with basic information on selecting, purchasing, and maintaining a personal motor vehicle. Designed primarily for Driver Education and Highway Safety instructors.

598 Readings in Industrial Education 2-4 hrs.
Directed individual or small group study of topics or areas not otherwise treated in departmental courses. Graduate standing and head of department consent required. Open to Graduate Students Only

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

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

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

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

641 Trends in Industrial Education 2 hrs.
Study of current programs in Industrial Education. Emphasis upon program research and development. Commercial, educational, and industrial publications to determine applicability of content to school shop programs.
643 Measurement in Industrial Education
Techniques involved in preparing and using teacher-constructed written and practical tests. Includes interpretation of test results and evaluation of student achievement.

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

645 Shop Planning
Planning and selecting equipment and supplies for an industrial education laboratory. Study of basic principles of planning and equipment selection reflecting current industrial education philosophy.

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

647 Modern Technological Practices — Foundry, Power Mechanics, Machine Shop, Welding, Electronics, etc.
In-service course for industrial teachers to learn up-dated technological practices. Cooperation of industrial groups utilized in course planning and organization. May be elected for a total of four semester hours.

648 Modern Technological Practices — Foundry, Power, Mechanics, Machine Shop, Welding, Electronics, etc.
Continuation of I ED 647.

650 Advanced Problems in Graphic Arts
Individual student study of advanced technical problems in graphic arts. Advanced instruction in imposition, presswork and linotype composition available.

661 Electricity for Teachers
Planning for an electrical area in a general shop or a unit electricity electronics laboratory. Special attention given to development of suitable instructional activities and technical information. Prerequisites: I ED 160 and 560.

671 Industrial Education Materials
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.

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

699 Technical Problems in Industrial Education
Designed for qualified graduate students to pursue technical problems of individual need or interest under direction of a Graduate Faculty member. May be
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.

**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 Upperclassmen and Graduate Students

510 Organization and Administration of Vocational Club Activities 2 hrs.

Organization and administration of vocational youth organizations, at national, state, and local levels. Uses of youth organizations as public relations and or teaching tools emphasized.

511 Field Experience in Vocational Clubs 1 hr.

Directed individual study of the organization and administration of multi-section Vocational student organizations. Includes organizational chart and list duties of the several functions to be performed. Prerequisite: I ED 510 Concurrent.

512 (AAS 520) Principles of Vocational Education 3 hrs.

Study the inter-relationships, place, and function of the practical arts and vocational education in a total education program. For administrators and teachers of agriculture, business, distributive, home economics, industrial and office subjects. Prerequisite: I ED 344.

Open to Graduate Students Only

611 (640) Philosophy of Vocational Education 2 hrs.

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

612 (AAS 605) 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 (AAS 622) Occupational Laboratory Experience 2-3 hrs.

Supervised industrial experience, requiring full-time employment for at least
College of Applied Sciences

one semester. Students will study and participate in experiences in a specific occupational area. Prerequisite: Consent of instructor and department head prior to registration.

614 (AAS 625) Administration and Supervision of Practical Arts and Vocational Education 2 hrs.
Emphasizes functions of administration and supervision and problems involved in organizing and operating vocational technical administrators and supervisors of vocational education programs and those preparing such positions.

615 (AAS 626) Trends in Technology and Employment 2 hrs.
Major occupational shifts resulting from recent advances in science and technology. The changing nature of the labor force, economic and sociological implications of automation and atomic power. Attention will be given to educational programs needed to meet technical and skilled manpower requirements.

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

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

Mechanical Engineering Technology (MET)

Bluman, Chairman; Professor Johnson; Associate Professors Gill, Hamelink, Ryan, Schubert

Open to Upperclassmen and Graduate Students

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

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

555 Mechanism Synthesis 3 hrs.
Type, number and dimensional synthesis of planar mechanisms by graphical and analytical methods. Computer design using optimization methods. Prerequisite: MET 358 (Offered alternate years).
558 Mechanical Vibrations 3 hrs.
A study of the oscillatory motion of physical systems with emphasis on the effects of vibrations on the performance and safety of mechanical systems. Prerequisites: MET 355 and 360, or MATH 223.

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

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

Open to Graduate Students Only

630 Advanced Fluid Dynamics 3 hrs.
Modern developments in fluid dynamics both in the areas of compressible and incompressible fluid flow. Topics include: Kinematics of fluid motion, laminar and turbulent flow in pipes, fluid machinery and supersonic flow. Prerequisites: MET 430, MATH 223.

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

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

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

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

Occupational Therapy (OT)
Tyndall, Chairman; Professor Kiss; Associate Professor Lewis; Assistant Professor, Anderson, Lukens, Richardson
Open to Upperclassmen and Graduate Students

510 Arts and Crafts for Rehabilitation Teachers of the Blind 2 hrs.
Includes methods and techniques of teaching needlework, ceramics, and leatherwork to visually handicapped adults.

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

524 Medical and Orthopedic Conditions 4 hrs.
A series of lectures providing an overview of medical and orthopedic conditions. Psychosocial aspects of disease and disability are discussed and an introduction to occupational therapy treatment goals is provided. Prerequisites: Consent of department chairman.

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

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

686 Seminar in Occupational Therapy 3 hrs.
This course is designed to provide 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. The course may be taken more than once. Prerequisite: Consent of graduate adviser.

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

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.
Paper Science and Engineering (PAPR)

Janes, Head; Professor Kukolich; Assistant Professors Fisher, Kline

Open to Upperclassmen and Graduate Students

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

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

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

590, 591 Instrumentation and Process Control 6 hrs.
A detailed consideration of the theory and practice of electronic and pneumatic sensing instruments and process control. Simulation of process dynamics and computer application will be emphasized.

Open to Graduate Students Only

600 Surface and Colloid Chemistry 3 hrs.
Intermolecular forces are considered in detail to build a sound background for consideration of surface and colloidal behavior of matter. The thermodynamics of interfaces and surfaces is covered in detail, considering the topics of absorption, surface films, wetting, capillary penetration, and diffusion. Colloidal topics covered include areas such as ionic boundary layers, electrokinetic potential, swelling and shrinkage of gels, ion exchange, surface active agents, detergency, and retention of particles.

620 Paper, Printing, and Ink 3 hrs.
A detailed analysis of the interrelationships of paper and the printing process. Printing problems and quality are considered as they are influenced by paper, coating, ink, and press conditions and operations.

640 Coating Rheology and Film Formation 3 hrs.
Theory and practice of pigment dispersion, coating and ink formulation, and characterization of non-Newtonian flow behavior. The relation of rheology to application, drying of films, and film properties will be discussed.

660 Mechanics and Optics of Paper and Fibers 3 hrs.
The mechanics and optics of individual fibers and fiber networks will be considered from both theoretical and measurement standpoints. Stress-strain-
analysis, theory of elasticity and flow, statics, reflection, absorption, transmission, and light scattering of these systems will be covered.

680 High Polymer Topics 3 hrs.

The physical chemistry, engineering properties, and behavior of synthetic and natural polymers and their solutions is presented. Methods of characterization and significance of molecular parameters is included.

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

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.

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

CORNELIUS LOEW,
Dean

TILMAN C. COTHRAIN
Associate Dean

JAMES P. ZIETLOW,
Associate Dean

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

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

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

Arts and Sciences (A-S)

Open to Upperclassmen and Graduate Students

AMERICAN STUDIES

A-S 501 Studies in American Culture 3 hrs.

An interdisciplinary study of perennial issues in American life. The materials for this course are drawn from literature, the arts, the social sciences, and philosophy.

FOREIGN STUDIES SEMINARS

A-S 503 Foreign Studies Seminar 1-6 hrs.

Foreign studies seminar in the Sciences organized and conducted by the College of Arts and Sciences for exceptionally talented undergraduate or graduate students. Students completing such a seminar may receive credit in the departments of Biology, Chemistry, Geography, Geology, Physics or Psychology if approved by the Head of the Department prior to registration for the seminar.

A-S 504 Foreign Studies Seminar 1-6 hrs.

Seminar in the Social Sciences. Students who complete such a seminar may receive credit in the departments of Anthropology, Economics, Geography, History, Political Science of Sociology if the credit is approved by the Head of the Department prior to registering for the seminar.

A-S 505 Foreign Studies Seminar 1-6 hrs.

Seminar in the Humanities. Students completing such a seminar may receive credit in the departments of Communication Arts and Sciences, English, Modern and Classical Languages, Linguistics, Philosophy or Religion if the credit is approved by the Head of the Department prior to registering for the seminar.

SSCI 504 Social Studies Seminar: England 6 hrs.

Foreign study seminar especially designed for teachers and advanced college students in the social studies. It consists of regularly scheduled lectures and dis-
Discussions on British life, institutions, social problems, and international relations. Following twelve days of travel in the British Isles, the seminar is in formal session at Oxford University for a period of about four weeks. After this, the party spends approximately a month touring several countries on the continent. A maximum of 3 hours credit in each of two departments in the Social Science area, under such conditions and stipulations as the individual departments may determine, may be allowed, but arrangements for this must be made in advance with the heads of the departments in which the student wishes to earn credit.

SSCI 504 Social Studies Seminar: East Africa 6 hrs.
Lecture and field-study program of approximately six weeks in Kenya and Uganda, especially for students and teachers in the social sciences with a special interest in Africa. A lecture series, focusing on the general theme “Education and Planning for Development” and combined with discussion forums is presented at the University College, Nairobi. University authorities and prominent leaders in African affairs deliver the lectures. Field study trips follow the lecture series. Three additional weeks are devoted to global travel. A maximum of three hours credit may be earned in each of two Social Science Departments, under such conditions and stipulations as the individual Departments may determine but arrangements for this must be made in advance with the heads of the departments in which the student wishes to earn credit.

A-S 514 Civilization Studies Seminar 1-6 hrs.
Seminar in the Social Sciences dealing with designated civilizations, cultures or areas. Students who complete such a seminar may receive credit in the departments of Anthropology, Economics, Geography, History, Political Science or Sociology if the credit is approved by the Head of the Department prior to registering for the seminar. May be repeated for credit.

A-S 515 Civilization Studies Seminar 1-6 hrs.
Seminar in the Humanities dealing with designated civilizations, cultures or areas. Students completing such a seminar may receive credit in the departments of Art, Communication Arts and Sciences, English, Modern and Classical Languages, Linguistics, Music, Philosophy, or Religion if the credit is approved by the Head of the Department prior to registering for the seminar. May be repeated for credit.

Anthropology (ANTH)
Maher, Chairman; Professors Garland, Greenberg, R. J. Smith; Associate Professors Baldwin, Green, R. Loffler; Assistant Professors Lex, E. Loffler, Sundick, West, Willis; Instructor Moore
Open to Upperclassmen and Graduate Students

500 Topics in Archeology 3 hrs.
A consideration of the prehistory of a particular geographic area (e.g. the southwestern United States, the Circumpolar) or of selected theoretical problems (e.g. artifact typology, prehistoric ecology). The topic to be studied will be announced each semester. May be repeated for credit. Prerequisite: ANTH 210.

501 The Rise of Civilization 3 hrs.
The archeological 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.

510 Field Methods in Archeology I 3 hrs.
Instruction in the archeology of a particular area (e.g. Great Lakes, southwestern United States, Aleutians), with particular attention to prehistoric cultural developments and ecological relationships as these appear in the process of excavation. May be repeated for credit. Prerequisite: Consent of instructor.

511 Field Methods in Archeology II 3 hrs.
Practical application of the basic skills used in excavation of archaeological sites, including surveying techniques, methods of excavation, compilation of field data sheets, and classification of artifacts. To be taken concurrently with ANTH 510. May be repeated for credit. Prerequisite: Consent of instructor.

520 History of Ethnological Theory 3 hrs.
A systematic examination of the evolution of the significant theoretical problems and contributions in anthropology over the last two centuries. Developments are examined in relation to the prominent figures in the discipline and their times. Prerequisite: ANTH 220 or 240 or consent of the instructor.

521 Formal Approaches to Anthropology 3 hrs.
An introduction to several tools of analysis which contribute to anthropological theory. Topics chosen from anthropological research methodology, mathematical anthropology and data processing. Prerequisite: ANTH 210, 220, 240, or 250.

522 Ethnographic Field Techniques 3 hrs.
A practical examination of the means of obtaining data for ethnographic purposes. Includes readings, discussion and supervised interviewing of informants. Topics include problem formulation, investigation strategies, research proposals, field living, interviewing techniques, participant observation. Prerequisite: Consent of instructor.

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

531 Medical Anthropology 3 hrs.
An examination of anthropological techniques and findings relating to medical beliefs and practices on a cross-cultural basis. Concern with the sociocultural aspects of health, illness, and folk and scientific systems of medical care. Prerequisite: ANTH 220 or 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 or 240 or consent of instructor.

534 Peasant Societies in Cross-Cultural Perspective 3 hrs.
A cross-cultural study of the development of peasant groups as a cultural type. Theoretical and substantial emphasis is on the cultural antecedents of peasant societies, the conditions promoting change from folk to peasant status, and the
relationships between peasant groups and urban, national societies. Prerequisite: ANTH 220 or 240 or consent of instructor.

535 The Anthropology of Religion 3 hrs.
An examination of anthropological theories and findings relating to the origin, nature, and function of religion as a universal category of culture. A scientific, cross-cultural consideration of religious beliefs and practices and their relation to concepts of the nature of the universe. The role of religion in revitalistic reactions to culture contact. Prerequisite: ANTH 220 or 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 210 or 220 or 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 or 240.

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 or 240.

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 and ECON 200 and or consent of the instructor.

540 Cultural Ecology 3 hrs.
A cross-cultural comparative inquiry into the general and specific ways in which the interaction of society and environment determines the forms societies take, especially in respect to demography, territoriality, and the organization of kinship, politics, law, religion and economics. Prerequisite: ANTH 210 or 220 or 240 or consent of instructor.

542 Complex Cultures 3 hrs.
Emphasis on anthropological approaches to cross-cultural, historical and in-depth studies of complex cultures. Selected topics: communities, including urban; the migration and adaptations of rural migrants to cities; particular sub-cultures of complex cultures; and current urban problems. Prerequisite: ANTH 220 or 240.

545 Topics in Ethnology 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.

A study of education as the process which transmits the culture of one generation of a society to the next. Particular attention is given to education in primitive and peasant societies generally lacking formal institutions of education. Prerequisite: SOC 200 or 600, or ANTH 220 or 240.

550 The Primates 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 or general problems in human biology (e.g. human genetics, human growth and constitution, paleopathology, dental anthropology). Topic will be announced each semester. May be repeated for credit with different topics. Prerequisite: ANTH 250.

575 Studies in Languages of the World 3 hrs.

Intensive study of a group of languages (varying from semester to semester) that are either genetically related (e.g. Slavic languages), typologically similar (e.g. "tone" languages), or geographically proximate (e.g. African languages). May be repeated for credit.

580 Linguistic Field Techniques 3 hrs.

Interview techniques for the elicitation of oral language data and methods of analysis of the data into significant linguistic units for their eventual arrangement in the form of a grammar and dictionary. Prerequisite: Consent of instructor.

598 Readings in Anthropology 1-4 hrs.

Independent study arranged in consultation with an instructor. Intended for advanced students with good academic records. 1 to 2 hours credit per semester, cumulative to 4 hours. Prerequisite: Consent of instructor.

Open to Graduate Students Only

601 Studies in Ethnology 3-4 hrs.

Intensive study of the principal questions of sociocultural theory. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

602 Studies in Archeology 3-4 hrs.

Advanced study in the major problem areas of prehistoric research. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.
603 Studies in Physical Anthropology

Advanced instruction and research in the principal problem areas in physical anthropology. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

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

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.

Biology (BIOL)

Goodnight, Chairman; Professors Birch, Brewer, Dulin, Haas, Holt, Robert, B. Schultz, Stott, VanderBeek, VanDeventer; Associate Professors Buthala, Eisenberg, Engemann, Fiscor, Fowler, Friedman, Inselberg, Josten, Kirton, Lawrence, Pippen, Sud, Wood; Assistant Professors Beuving, Chang, Diani, DuCharme, Johnson, Olsen

Open to Upperclassmen and Graduate Students

500 Selected Experiences in Biology 3 hrs.

Problems to be studied are selected under the guidance of the instructor. Laboratory work consists of independent studies of living plants, animals and environmental problems. This is done outside of class time, utilizing procedures outlined by the instructor. Primarily for teachers. Prerequisite: Consent of instructor.

502 Human Ecology 3 hrs.

A study of the man dominated biotic community of civilization and its interrelationships. Lectures, assigned reading, group and individual field work. Prerequisite: At least a minor in biology.

503 Genetics of Eukaryotes 3 hrs.

A study of the structure, function, mutation and recombination of the genetic material in the nucleate organisms at the molecular, cell, tissue and organismal level. Prerequisite: BIOL 306.

505 Human Genetics 3 hrs.

The principles of heredity in man with particular emphasis on the medical significance of biochemical and chromosomal variation. Prerequisite: BIOL 306 or equivalent.

506 Microbial Genetics 3 hrs.

A molecular approach to microbial genetics dealing primarily with bacterial and viral systems. Prerequisites: BIOL 306 or 412 and a knowledge of biochemistry.

507 Biology of Addictive Drugs 3 hrs.

The principles of pharmacology as related to drug addiction and drug abuse in man. This course is designed primarily for the preparation of health educators, paramedical trainees, and addiction therapy. Prerequisites: At least a minor in biology or sociology, or consent of the instructor.
508 Recent Advances in Biology  3 hrs.
Recent research findings at the frontiers of biology as reported in periodicals, symposia and biological meetings. Prerequisite: At least twelve hours in biology.

509 Evolution  3 hrs.
A consideration of the evidence for and the principles involved in the evolution of plants and animals, including man. Prerequisite: BIOL 306 or consent of instructor.

510 Viology  3 hrs.
A study of the structure and physiology of viruses. Relationship to host is stressed. Prerequisites: BIOL 412 and a knowledge of organic chemistry or biochemistry.

511 Physiology of Reproduction  3 hrs.
A comparative study of the reproductive physiology of domestic animals, laboratory animals and man. Prerequisites: BIOL 317 and a working knowledge of biochemistry or consent of instructor.

512 Health Problems  2 hrs.
A course for students with special interest in the medical and public health areas. The pathology, treatment and control of the major causes of mortality and ill health are presented. A broad background in biology and chemistry is desirable.

513 Pathogenic Microbiology  3 hrs.
This course deals with pathogenic microorganisms, infectious diseases, diagnostic tests and principles of immunology. Prerequisite: BIOL 412 or equivalent.

514 Bacterial Physiology  3 hrs.
Lectures on bacterial cytology, metabolism, and physiology with emphasis on biochemical aspects. Prerequisites: BIOL 412 and biochemistry (may be taken concurrently).

516 Experimental Microbial Physiology  3 hrs.
An experimental approach to metabolism, physiology, and genetics with emphasis on biochemical techniques. Prerequisite: BIOL 514.

517 Cellular Physiology  3 hrs.
Concerned with the details of structure and functioning of cells, both animal and plant. The current status of major problems in the field is considered. Prerequisite: BIOL 317 or consent of instructor.

518 Integrative Physiology  3 hrs.
A survey of physiological events at both the cellular and organismal levels, as regulated and integrated by hormonal, neuroendocrine and other bioactive agents. Vertebrates, invertebrates, and plants will be considered as organisms whose metabolic pathways, the interrelationship of synthesis and metabolism of lipids, sugars and proteins and their various enzyme systems are regulated by hormones, neuropeptides, as well as intracellular messengers such as 3′5′ adenosine monophosphate. Some discussion of genetic, metabolic, and behavioral pathology which are related to hormones will be included. Prerequisite: Core biology program, a biochemistry or an advanced physiology course or consent of the instructor.
519 Comparative Animal Physiology 3 hrs.
A study of the basic physiological processes as they occur in various groups of animals. Prerequisite: BIOL 317 or equivalent.

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

523 Paleobotany 3 hrs.
A study of the characteristics, historical and evolutionary relationships of plants based upon the fossil record. At least two extended field trips are taken. Prerequisite: BIOL 221 or equivalent.

525 Biological Constituents 3 hrs.
The chemical elements in plants and animals, as well as the synthesis, characterization, and degradation products of the more important compounds. Prerequisites: Twelve hours of biology; one year of chemistry.

526 Mycology 3 hrs.
Studies in the classification, structure, physiology, development and economic importance of fungi. Prerequisites: BIOL 301 and 306, or consent of instructor.

527 Plant Physiology 3 hrs.
Advanced investigations into plant functions. Basic principles are examined more intensively. Advantage is taken of the discoveries and unifying principles of modern biochemistry. Prerequisite: At least twelve hours of biology or consent of instructor.

528 Biology of Non-Vascular Plants 3 hrs.
The study of classification, ecology and reproductive cycles of algae, fungi and bryophytes. Culture methods of growing these plants for research occupies a part of laboratory work. Prerequisite: At least twelve hours of biology or consent of instructor.

529 Biology of Vascular Plants 3 hrs.
A detailed study of the morphology, life cycles, and evolution of vascular plants. Individual research required. Prerequisite: At least twelve hours of biology or consent of instructor.

530 Environmental Education 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 the survey is to define problems and consider paths to solutions. Students are expected to plan and, if possible, to initiate environmental education programs in their own professional areas.

531 Experimental Animal Physiology 3 hrs.
Introduction to the practice of physiological research; design, execution and analyses of experimental studies upon phenomena of contemporary interest with detailed discussion of underlying physiological principles, with emphasis on modern methodologies and instrumentation. Prerequisite: BIOL 317 and consent of the instructor.
538 Field Natural History 3 hrs.
A study of biological communities with particular emphasis on those accessible for use by public schools, e.g., school grounds, vacant lots, roadsides, parks and undeveloped areas. Primarily for teachers. Prerequisite: At least twelve hours of biology or consent of instructor.

539 Animal Behavior 3 hrs.
Animal behavior with emphasis on evolution and ecology to include an introduction to the ethological point of view. Two student projects. Prerequisite: BIOL 301 and consent of instructor.

540 Cell and Organ Culture Techniques 3 hrs.
The various techniques of cell and organ culture will be utilized to establish in vitro cultures of animal cells and to study specific cell types, such as macrophages, lymphocytes, and liver parenchyma. Specific problems of special interest to the students will be assigned. Prerequisite: Consent of instructor.

541 Invertebrate Zoology 3 hrs.
A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: At least twelve hours of biology or consent of instructor.

542 Entomology 3 hrs.
A general study of insects, their structure, classification, life histories, ecological relationships and economic importance. Collection and identification of local species is required. Prerequisite: Twelve hours of biology.

543 Protozoology 3 hrs.
Field and laboratory studies of both free-living and parasitic protozoans, including taxonomy, morphology, life histories, ecology, heredity, evolutionary development. Prerequisite: BIOL 301 or consent of instructor.

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

545 Histology 3 hrs.
A study of the microscopic structure of tissues and organs. Prerequisite: BIOL 210 or equivalent.

546 General Cytology 3 hrs.
A study of the nuclear and cytoplasmic structures of the cell involving cytochemistry and histochemistry. Principles of classical and electron microscopy will be considered. Prerequisites: An introductory course in biology. A course in physics and organic chemistry are highly recommended.

547 Ornithology 3 hrs.
A broad course that explores both scientific and popular aspects of bird study. Life history, anatomy and physiology, behavior, ecology, and evolution are considered. Identification, bird-banding, and preparation of study skins are included. Prerequisite: Consent of instructor.
548 Animal Ecology 3 hrs.
Characteristics of animal populations and their interactions with other populations, the role of animals in the functioning of ecosystems. Prerequisite: A course in ecology and a course in statistics, or consent of the instructor.

549 Ecology of Southwestern Michigan 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 either systematic botany or invertebrate zoology.

550 Plant Anatomy 3 hrs.
An embryological and histological approach to the study of morphogenesis in seed bearing plants. Primary emphasis will be placed on monocots and dicots. Prerequisites: BIOL 102 and 529.

551 Parasitology 3 hrs.
A study of parasites and host-parasite relationships illustrated by typical representatives of the principal animal groups. Special attention is given to the parasites of man. Prerequisite: At least twelve semester hours of biology.

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

553 Limnology 3 hrs.
Biological, chemical, and physical aspects of lakes and streams. Emphasis is on the ecological relationships of invertebrate animals and lower plants. Prerequisite: At least twelve hours of biology or consent of instructor.

555 Physiological Ecology 3 hrs.
A study of the physiological and behavioral adaptation and responses of organisms to external environmental factors. Prerequisites: BIOL 301 and 317 and a year of chemistry or consent of instructor.

556 Immunology 3 hrs.
A study of the biological and biochemical mechanisms of the immune response and the chemical nature of antibodies, antigens and their interaction. Prerequisite: BIOL 412.

557 Tropical Marine Ecology 3 hrs.
A study of the complex interrelationships of marine life off the coast of British Honduras. Individual and group projects will be conducted on the cays and atolls of the second largest barrier reef in the world. Students must be experienced swimmers and capable of snorkel diving. Prerequisite: BIOL 301 and consent of Consortium Screening Committee. (Available only at Tropical Research Center, Belize, British Honduras)

558 Tropical Terrestrial Ecology 3 hrs.
A study of the terrestrial ecology in the various regions of British Honduras. Various locations will be selected to investigate the structure and dynamics of a variety of tropical ecosystems. Prerequisite: BIOL 301 and consent of Consortium Screening Committee. (Available only at Tropical Research Center, Belize, British Honduras)
559 Radiation Biology

A study of the fundamentals of radiobiology including isotope technology, radiation measurements, radioactive decay, radiation and interaction in living matter, and health and safety regulations in the laboratory. Prerequisites: A minor in chemistry and consent of instructor.

561 Biology of Lower Vertebrates

The biology of lower vertebrates with special reference to adaptation, evolution behavior and ecology of major groups. Classification, museum and field methods will be stressed in laboratory. Field trips required. Prerequisite: BIOL 301 or equivalent.

562 Biology of Higher Vertebrates

Continuation of BIOL 561.

598 Readings in Biology

1-3 hrs.

599 Independent Studies in Biology

1-4 hrs.

For students who wish to carry on advanced work in special fields. Prerequisite: Consent of instructor.

Open to Graduate Students Only

601 Special Investigations (various areas)

2-6 hrs.

Critical examination of developments in the various specialties represented by members of the department. The field in which work is offered will be indicated in the student record. May be repeated for credit. Prerequisite: Consent of instructor.

602 Seminar (various areas)

2-6 hrs.

Several Seminars in various areas of biology will be offered. The student's record will indicate the seminars in which he has participated. May be repeated for credit. Prerequisite: Consent of instructor.

603 Seminar in Substance Abuse I

3 hrs.

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

604 Seminar in Substance Abuse II

3 hrs.

Continuation of BIOL 603. This course is cross-listed with Counseling-Personnel, Psychology, Social Work, and Sociology. Prerequisite: Admission to Specialty Program in Alcohol and Drug Addiction, or consent of instructor.

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

700 Master's Thesis

6 hrs.

710 Independent Research

2-6 hrs.
Black Americana Studies

A-S 500 Black Humanism
Leroy R. Ray, Jr., Director
3 hrs.

An examination of the creative dimension of the Black Experience. Isolated and set apart in an enemy environment, Americans of African descent have been very creative in a wide range of human undertakings. This fact has been acknowledged and accepted, but this creativity has not has free range. One of the outcomes of the Black Revolution has been the emergence of “soul” as a concept to label the artistry and artfulness of Black American life. The creative dimension has also included science and technology. Black humanism is a way of getting at the life-styles of Black Communities and individuals and the viability of the Black Presence and Experience. What universal elements can be identified in “soul?” What would American life and culture be like without this elusive quality?

A-S 600 Black Americana Studies — Seminar
4-6 hrs.

In-depth study of specific areas of Black American life and culture. Since Negro Americans have been involved in the total life of the nation, special study is called for. There are at least two dimensions which lend themselves to special study: the first and most obvious is that of unusual achievement by persons of known and identifiable African ancestry. A second and more elusive dimension is Black “influence” positively and negatively in American life and culture.

Chemistry (CHEM)

Ifland, Chairman; Professors Berndt, Cooke, Harmon, Holkeboer, Nagler, Stenesh; Associate Professors Anderson, Brown, Foote, Houser, Howell, Kan'an, Kammueller, Lowry, Steinhaus, Warren; Assistant Professors McCarville, Trimitis.

Open to Upperclassmen and Graduate Students

505 Chemical Literature
1 hr.

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

506 Chemical Laboratory Safety
1 hr.

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

509 Topics in Chemistry
3 hrs.

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

510 Inorganic Chemistry 4 hrs.

The course includes descriptive and theoretical inorganic chemistry as well as preparation of different types of inorganic compounds. Prerequisite or corequisite: CHEM 431.

520 Instrumental Methods in Chemistry 3 hrs.

An introduction to the theory and application of modern chemical instrumentation is presented. General topics covered are elementary electronics, electrochemistry, spectroscopy and other instrumental techniques. Four hours of laboratory per week. Prerequisite or corequisite: CHEM 431 and 436.

535 Introduction to Physical Chemistry 4 hrs.

Theory and applications of chemical structure, energetics, and rates and mechanisms of processes as a basis for understanding the principles of chemistry. Laboratory experiments are designed to emphasize quantitative measurements and the use of instrumentation in chemical systems. This course may not be applied to the requirements for a major in chemistry or for a graduate curriculum in chemistry. Prerequisites: Sixteen hrs. of chemistry, MATH 123, PHYS 111 or 211.

550 General Biochemistry 3 hrs.

A thorough study of the chemistry and properties of carbohydrates, lipids, proteins and nucleic acids. Includes a discussion of enzymes, coenzymes and biochemical energetics. Prerequisites: CHEM 361, and 430 or 535.

554 General Biochemistry 3 hrs.


555 Biochemistry Laboratory 3 hrs.

A course designed to acquaint the student with current methods used in biochemical research. Experiments will include gas chromatography, thin layer chromatography, electrophoresis, enzyme purification and assay, and techniques using radioactive isotopes. Prerequisites: CHEM 550 or 450, and 222.

560 Qualitative Organic Analysis 3 hrs.

A course in the spectroscopic and chemical methods of identification of organic compounds in the pure state and in mixtures which has as a secondary goal the development of deductive reasoning in the field of organic chemistry. Prerequisites: CHEM 361, and twenty-four hours of chemistry.

562 Advanced Organic Chemistry 3 hrs.

Covers selected topics such as organometallic compounds, heterocyclic compounds, dyes, introduction to photochemistry, organo-silicon compounds, etc. Prerequisite: CHEM 361.

580 History of Chemistry 3 hrs.

This course is taught from the point of view of the history of chemical theory in which the evidence for the theories is critically presented. Prerequisite: Sixteen hours of chemistry including at least one semester organic.
590 Special Problems in Chemistry

Research work on a problem in chemistry in association with a faculty member. May be repeated on credit. Prerequisites: Twenty-four hours of chemistry, with approval of the department chairman and a faculty director.

Open to Graduate Students Only

601 Graduate Seminar

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

605 Advanced Chemistry Laboratory Technique

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

610 Advanced Inorganic Chemistry

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

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

612 Topics in Inorganic Chemistry

A cooperative investigation of one or more topics of major consequence in contemporary inorganic chemistry. Aspects of the topic will be developed from primary sources and presented by the students. Prerequisite: CHEM 610 or 611.

622 Theory of Analytical Chemistry

A course in the fundamental principles underlying chemical methods of analysis. Special emphasis is placed on equilibria, kinetics, and mechanisms of the important types of chemical reactions (acid-base, precipitation, complex formation and redox) involved in chemical analysis; on methods of separation (precipitation, electrodeposition and distillation techniques); and on the application of statistical methods of sampling, experiment design and interpretation of results. Prerequisite: CHEM 431.

624 Analytical Spectroscopy

A comprehensive treatment of those instrumental techniques which are based upon either the emission or absorption of energy by matter. Emission spectroscopy; Raman spectroscopy; mass spectrometry; ultraviolet, visible, and infrared absorption spectroscopy; fluorimetry; and other selected topics. Prerequisite: CHEM 520.
625 Electroanalytical Chemistry 3 hrs.
The theory and application of electrochemical measurements are discussed with particular emphasis on the theoretical aspects of polarography, potentiometry, amperometry, conductometric titrations, and other selected topics. Prerequisite: CHEM 520.

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

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

630 Advanced Physical Chemistry 3 hrs.
Introductory quantum mechanics with particular emphasis on its use in special studies and the understanding of chemical bonding. The Boltzman distribution law and its applications to kinetic molecular theory and statistical mechanics. Prerequisite: CHEM 431.

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

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

636 Spectroscopy and Molecular Structure 3 hrs.
Concepts of atomic and molecular spectroscopy; the use of spectral data to determine the structure and physical constants of molecules; quantum mechanical interpretation of the electronic, vibration and rotational spectra of diatomic and simple polyatomic molecules; fundamentals and applications of nuclear magnetic resonance, electron spin resonance and Mossbauer effect to chemical structure problems. Prerequisite: CHEM 630.

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

650 Proteins and Nucleic Acids 3 hrs.
An advanced course in macromolecules dealing mainly with proteins and secondarily with nucleic acids. Topics covered include physical techniques for studying macromolecules such as ultracentrifugations, diffusion and viscosity; isolation and purification of protein; structure and properties of proteins and nucleic acids; protein biosynthesis; properties of enzymes and the kinetics of enzyme reactions. Prerequisite: CHEM 550.
652 Lipids 3 hrs.

The chemistry, metabolism and methods of isolation and analysis of the major classes of lipids are discussed. Specific topics include fatty acids, fats, phospholipids, glycolipids and chromatography. Prerequisite: CHEM 550.

653 Enzymes 3 hrs.

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

659 Topics in Biochemistry 3 hrs.

Content of the course will vary depending upon student interest and availability of staff. Contemplated topics include advanced intermediary metabolism, viruses, cancer biochemistry, physical techniques, etc. Prerequisite: CHEM 550.

661 Organic Reactions 3 hrs.

An intensive study of organic reactions with emphasis on preparative scope and utility. The following types are considered: aliphatic substitution, oxidation, reduction, condensation, etc. Prerequisite: CHEM 361.

662 Stereochemistry 3 hrs.

A consideration of shapes of molecules and the isomeric consequences. Atomic and molecular orbital interpretation of molecular shape, resonance relation of stereochemistry to substitution and alkene addition reactions will be considered. Prerequisite: CHEM 361.

663 Mechanisms in Organic Chemistry 3 hrs.

Free radical, ionic, and multistate reaction types are considered. The influence of structure and media on reactivity is included. Prerequisites: CHEM 361 and 431.

669 Topics in Organic Chemistry 3 hrs.

The course content will vary with needs of students and special competency of instructor. Prerequisite: CHEM 661 or 662 or 663 or consent of instructor.

690 Doctoral Research in Chemistry 2-10 hrs.

Research on a predoctoral problem in chemistry in association with a faculty member. Registration may be repeated as needed to complete the doctoral program. Prerequisite: Approval of the Chemistry graduate adviser and faculty director. Graded on a Credit-No Credit basis.

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

700 Master's Thesis 6 hrs.

730 Doctoral Dissertation 15 hrs.
Communication Arts and Sciences (CAS)

Brown, Chairman; Professors Buys, Helgesen, Smith, York; Associate Professors Crane, Dieker, Fleischhacker, Furbay, Grandstaff, Herman, Jaksa, Karsten, Ratcliffe, Robeck, Rossman, V. Stillwell, Walton; Assistant Professors Cottrell, Livingstone, Pagel, Sill, Stech, L. Stillwell

Open to Upperclassmen and Graduate Students

510 Studies in Oral Interpretation: Variable Topics 3 hrs.
Projects in reading and analysis of literature to intensify the student's application of the theory and principles of oral interpretation. Topics will vary each semester and students may repeat the course. Possible topics include the following:

a. Oral Interpretation of Shakespeare
b. Oral Interpretation of the Bible
c. Oral Interpretation of Selected Long Literary Forms

520 Studies in Theatre: Variable Topics 3 hrs.
Selective study within a broad range of aspects of theatre. Emphasis is upon concepts, theory and advanced skills. Possible topics include the following:

a. Advanced Acting
b. Advanced Directing
c. Improvisational Theatre
d. Stage Lighting
e. Advanced Costuming
f. Dramatic Theory and Criticism
g. Advanced Technical Theatre

526 History of Theatre 3 hrs.
From the beginning to the English Renaissance.

527 History of Theatre 3 hrs.
From the English Renaissance to the present day.

529 Stage Design 4 hrs.
A course for students in design, including stage lighting and stage settings. Includes laboratory practice in staging University Theatre productions.

530 Studies in Rhetoric: 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 course schedule.

a. Conflict Resolution
b. Ethics and Freedom of Speech
c. Historical Bases of Rhetoric

Analysis in depth of current and continuing issues in mass communication. Topics vary from semester to semester and students may repeat the course for
credit. Possible topics include the following:

a. Mass Media Law and Regulation
b. News, Politics and Mass Communication
c. Mass Communication and Children
d. Development of Mass Media in the United States
e. Teaching Mass Media in Secondary Schools

545 Television as a Creative Medium 3 hrs.

A study of the unique qualities of the television medium, through examination and analysis of television documentary, drama, visual essay and other forms from historical and contemporary periods. The observations of critics and theorists who have attempted to describe the aesthetic values of the medium will be explored.

547 Instructional Radio-Television 3 hrs.

Application of radio and television for the communication specialist. Utilization of electronic resources for instruction, observation, research, and training. Lab Fee $10.

560 Studies in Communication Education: Variable Topics 3 hrs.

Selected studies in background, methods, materials and procedures in any one of the several speech areas. Possible topics include directing speech activities, communication behaviors of change agents, as well as others. Topics will vary from semester to semester and students may repeat the course.

561 Teaching Communication in the Elementary School 4 hrs.

Examination of the linguistic development of pre-school and elementary school children, the functions of language, study of the nature of the emotional and physical development of children as related to symbol using behaviors, study of materials and methods for affecting desired behaviors in children’s thinking, communicating and enjoyment.

562 Teaching Communication in the Secondary School 4 hrs.

This is a course in becoming a professional teacher of communication. The focus of the course is self-examination, openness, and individual initiative. Some of the major topics are an examination of self in relation to teaching, the evolving and changing philosophies of speech communication education, the world of high school teaching as it now exists, innovative procedures in teaching communication, and how to get and hold a job in speech communication. The class is, for the most part, a laboratory-workshop, using a mixture of group work, guests, visitations, and special projects. The student must have completed at least fifteen hours of work in CAS and, ideally, take the course immediately prior to student teaching.

564 Creative Dramatics for Children 4 hrs.

Study of the principles, materials and techniques of using informal drama as a classroom activity in elementary grades. Emphasizes theoretical and practical application through the planning and teaching of drama experiences.

570 Studies in Communication: Variable Topics 3 hrs.

Selected areas of study within the total range of communication. Each of the courses listed below carries separate credit, and a student may take any or all of the offerings listed under CAS 570. In addition to the topics listed, additional topics are offered from time to time, and will be listed in the course schedule.
a. Interpersonal Theories of Communication
b. Personality and Communication
c. Non-Verbal Communication
d. Attitude Change and Social Influence
e. Theory and Research in Sensitivity Training
f. Semantics
g. Introduction to Communication Research
h. Intercultural Communication

598 Independent Studies 1-4 hrs.

A program for advanced students with an interest in pursuing independently a program of readings, research or projects in areas of special interest. To be arranged in consultation with a member of the staff and the chairman of the department.

Open to Graduate Students Only

600 Listening 3 hrs.

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

610 Seminar in Oral Interpretation: Variable Topics 3 hrs.

Oral interpretation as related to techniques and materials of individual and group readings. Provides opportunity to explore problems of various forms and practices in oral interpretation.

620 Seminar in Theatre: Variable Topics 2-6 hrs.

Provides study of broad inter-related aspects of historical and contemporary theatre. Topics include theatre and communication, theatre administration, and other topics to be offered on occasion.

625 Summer Theatre 2-6 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 credit hours is determined by length of workshop: Two weeks two hours, four weeks four hours, six weeks six hours. Length of workshops is determined by the particular focus on the topic studied. See Summer Class Schedules for offerings for specific years. Each workshop offered will focus on a specific aspect or problem of the topic under consideration. Topics include:

a. Acting
b. Improvisation
c. Directing
d. Technical Theatre
e. Design
f. Lighting and Sound
g. Costuming
h. Makeup
i. Management

630 Seminar in Rhetoric: Variable Topics 3 hrs.

Explorations into selected topics in contemporary rhetoric. Possible topics,
each of which may be taken for credit, include the following:

a. Rhetoric or Confrontation
b. Political Rhetoric
c. Philosophy of Dialogue

631 Group Problem Solving 3 hrs.
Study and practice of the dynamics of group of various kinds, as well as the methods of arriving at groups decisions. Includes the understanding of leader and participant roles.

640 Seminar in Mass Communication: Variable Topics 3 hrs.
Exploration of topics related to mass communication theory, process and application. Topics vary from semester to semester and the course is repeatable for credit. Possible topics include the following:

a. Mass Entertainment
b. Mass Communication and Social Change
c. Mass Communication and Education
d. International and Comparative Systems of Mass Communication

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

664 Seminar in Creative Dramatics: Variable Topics 3 hrs.
Considers relationships of theory, materials and techniques of creative dramatics to child development and creative teaching in the elementary school.

670 Seminar in Communication: Variable Topics 3 hrs.
Exploration into selected topics in communication. Possible topics, each of which may be taken for credit, include:

a. Cognition and Emotion
b. Current Issues in Communication
c. Small Group Communication
d. General Semantics

671 Practicum in Communication Research 3 hrs.
Selecting, formulating, designing, conducting and reporting communication research. Admission only by consent of instructor.

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

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.
Economics (ECON)

Professors Bowers, Carlson, Copps, Ho, Junker, Ross, Sichel, Zelder; Associate Professors Eckstein, Gardner, Kripalani, Wend; Assistant Professors Emerson, Morreale, Zinn

Open to Upperclassmen and Graduate Students


An examination of a selected area of concern not intensively covered in other courses. The focus of the course will be substantive as well as analytical. Topics may include such areas as poverty, the war industry, farm problems, misallocation of resources, welfare programs, unemployment and others. May be repeated for credit with a different topic. Prerequisite: ECON 201 and 202.

502 Studies in Quantitative Economics 4 hrs.

The course deals with statistical and mathematical techniques and concepts useful in economic analysis and their application to various areas in economics. Subject matter of the course will vary from semester to semester and may be chosen from such diverse topics as: linear programming, game theory, input-output analysis, statistics, welfare economics, utility theory and business cycles. Prerequisite: MATH 122 or consent of instructor.

504 Introduction to Mathematical Economics 4 hrs.

This is an introductory course to acquaint the student with the application of the basic mathematical concepts and operations to economic analysis, including such topics as revenue curves, costs curves, capital assets, and multipliers and accelerators. Prerequisites: ECON 201 and 202, MATH 122, or consent of instructor.

505 (405) History of Economic Thought 4 hrs.

A survey of the origin and development of economic thought from early times to the present. After a brief consideration of early mercantilism and the evolution of the philosophy of natural liberties special emphasis will be placed on the contributions of significant economic thinkers and the influence of various schools of economic thought on national policy and economic development. Prerequisites: ECON 201 and 202.

507 Monetary Theory and Policy 3 hrs.

This course concentrates on the main elements of monetary theory and policy having to do with such problems as promoting economic growth, maintaining full employment and price stability, influencing the flow of capital into the various economic sectors with different possible social goals in mind, and stabilizing 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, 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. Prerequisite: ECON 410 or consent of instructor.

515 Economics of Human Resources 3 hrs.
The course will examine the development and utilization of manpower in the United States, including such topics as labor force components, contributors to productivity such as education, training, health and mobility, and issues of manpower policy. Prerequisites: ECON 201 and 202.

525 State and Local Government Finance 3 hrs.
Practices, effects, and issues in state and local expenditure, taxation, and borrowing, with particular attention to property and sales taxation, to the financing of education and highways, and no intergovernmental fiscal relations. Prerequisites: ECON 201 and 202.

526 The Urban Economy 3 hrs.
The course will examine the economic structure and development of the urban complex. Among the topics to be considered are: the process of suburbanization, urban sprawl and urban blight, the pricing and production of public utilities in the local economy, economics of scale, the size of the urban area, the place of planning, the impact of public services and the tax structure on the location of economic activity, intergovernmental economic relationships. Prerequisites: ECON 201 and 202.

539 Economic Anthropology 3 hrs.
A thorough examination of the relationship between economic and 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 231, ECON 201 and 202 and/or consent of instructor.

542 Business and Government 4 hrs.
A study of the regulatory policies of government and their impact on private enterprise. The course seeks to explain the need for regulation, and to provide an analysis and evaluation of the various laws from the viewpoint of encouragement, subsidization and control. Special attention will be directed to certain aspects of concentration of 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  
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  
The course concentrates on the study of the Japanese, Chinese and Indian economic systems. These models are then applied as basis of comparison to the other Asian economics. Prerequisites: ECON 201 and 202.

588 Economic Development  
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  
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.

598 Readings in Economics  
An independent program of study for qualified advanced students to be arranged in consultation with the instructor. Prerequisite: Consent of department head.

Open to Graduate Students Only

600 Applied Economics for Management  
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  
A concentrated course in basic economic concepts with special emphasis on those areas most beneficial to teachers of social studies.

603 Advanced Price Theory  
An advanced study in the logic of the pure theory of production; joint production and joint costs, an introduction to the multi-periodic production theory. Advanced theory of consumer behavior; aggregation problems in product supply, factor demand and consumer demand analysis; review of selected empirical studies on consumer demand analysis; consumer surplus; problems involving optimization
over time and under conditions of uncertainty including: role of savings in consumer demand theory. (utility maximization over time) Prerequisites: ECON 303 and 504.

606 Seminar in the Evolution of Economic Thought 4 hrs.
A critical study and evaluation of the various schools of economic thought with special emphasis on the ideas and theories of the leading economists in the classical, romantic, historical, socialist, neo-classical, institutional, Keynesian, and welfare economic schools. Individual research will provide the basis of class discussion. Prerequisite: A minimum of nine credit hours including ECON 201 and 202.

609 Seminar in Economics 3 hrs.
Offers the graduate an opportunity to investigate contemporary problems in economic theory and analysis. Prerequisite: 4 hours of advanced economic theory or consent of staff. Topics will vary and course may be repeated.

612 Labor Union Structure and Practice 3 hrs.
An analysis of the government and operation of American labor unions with particular reference to the problems of union leadership, disciplinary procedures, membership control and the economic and social consequences of these practices.

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

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

651 Seminar in Industry Studies 2 hrs.
This course offers the graduate student who has previously studied industrial organization and public policy the opportunity to investigate the structure, behavior, and performance of a particular industry of his choice. The course will be conducted as a seminar in which the participants will discuss their findings as well as particular problems that they have incurred in the course of their research. Prerequisite: ECON 650 or the permission of the instructor.

662 National Income Analysis 3 hrs.
A basic course in economic theory with emphasis on modern theories of output of the economy as a whole and on the uses of these theories as guides to policy. Prerequisites: ECON 201 and 202.

680 Problems in International Trade and Finance 3 hrs.
An analytical understanding of contemporary issues in international trade and finance will be emphasized. Prerequisite: ECON 480 or 580 or consent.

684 Analysis of Economic Systems 3 hrs.
A comparative analysis of the role of markets and planning as means for the implementation of the goals and ideals of modern economic systems. Particular stress is placed upon modern capitalism and liberal socialism in the Western World. Prerequisite: ECON 484 or consent of the instructor.
688 Issues in Economic Development 3 hrs.

An intensive examination of a number of selected key topics in development economics, centering on issues of crucial importance to developing nations. Examples of such issues are primary products, capital formation, technological change, inflation, debt servicing, population, etc. Prerequisites: ECON 201 and 202.

690 Technology and Economics: The Continuing Revolution 3 hrs.

An examination of the continuing impact of technological-scientific revolution on economic theory, on socio-economic behavior and on the changing human condition. Prerequisites: ECON 201 and 202.

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

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

English (ENGL)

Davis, Chairman; Professors Callan, Combs, Galligan, Gianakaris, R. Goldfarb, Holaday, MacRorie, Malmstrom, Miller, Nelson, Sadler, Woods; Associate Professors N. Carlson, Cooley, Cooney, Davidson, Davis, Fritscher, C. Goldfarb, Johnston, LaRue, Phillips, H. Scott, Shafer, Small, K. Smith, Stallman, Stott, Stroupe, Weaver; Assistant Professors B. Carlson, Cuthbirgh, Dean, Demetrağopoulos, Douma, Gingerich, Grant, Hinkel, S. Scott, Seiler, Syndergaard

Except as noted below, graduate students in non-English curricula may elect 500 level English courses for graduate credit only if they have had two prior literature courses.

Open to Upperclassmen and Graduate Students

519 Studies of Non-Western Literatures in Translation 4 hrs.

Studies in Indian, and other non-western literatures.

522 Topics in American Literary History 4 hrs.

Study of a movement, genre, period or theme.

529 Medieval English Literature 4 hrs.

Readings in Old and Middle English literature, excluding Chaucer.

530 Medieval Continental Literature in English Translation 4 hrs.

Readings, in English translation, in medieval European literature exclusive of England.

531 Chaucer 4 hrs.

Readings in Chaucer, with emphasis on Troilus and Criseyde and The Canterbury Tales.
532 Sixteenth Century Literature
Selections from major works in both prose and verse, by such writers as Wyatt, More, Sidney, and Spenser.

533 Seventeenth Century Literature
Selections from the major works in both prose and verse from 1600 to the Restoration, by such writers as Bacon, Browne, the metaphysical poets, and Milton.

534 Neo-Classical Literature
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
Readings in poetry and criticism, with emphasis on Blake, Burns, Wordsworth, Coleridge, Scott, Byron, Shelley, and Keats.

537 Victorian Literature
Readings emphasizing Carlyle, Mill, Dickens, Thackeray, Tennyson, Brownings, and Arnold.

538 Modern Literature
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
Studies in the non-Shakespearean drama in England during the Elizabethan and Jacobean periods, by such dramatists as Kyd, Marlowe, Jonson, Webster, Tournour and Ford.

554 Milton
A study of Milton's major works, with emphasis on Paradise Lost and the major poetry.

555 Studies in Major Writers
Study of the works of classical, European, British, or American writers. Limited to one or two authors. May be repeated for credit as long as the authors covered are different.

566 Creative Writing Roundtable
An advanced course in the writing of poetry, fiction and/or drama, with class criticism of each student's writing. The course may be taken more than once.

572 American Dialects
A study of regional, social, and stylistic variation among American dialects with emphasis on the dialects of minority ethnic groups as structured systems.

574 Linguistics for Teachers
An application of the concepts of linguistics to the teaching of language,
literature, composition and reading in the English curriculum. Prerequisite: ENGL 270 or an Introduction to Linguistics course or permission of an English adviser.

598 Readings in English 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.

622 Studies in American Literature 3 hrs.
The advanced study of selected aspects of American literature.

640 Poetics 3 hrs.
An analysis of poetry, poetic theory and practice; the aesthetics of poetry.

641 Studies in Modern Poetry 3 hrs.
An intensive study of the writings of several modern poets.

642 Studies in Drama 3 hrs.
Selected areas of drama from classical times to the present.

644 The Novel: Form and Technique 3 hrs.
An examination of significant forms and techniques employed in the novel from its prototypes through its more recent development.

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

Selected tragedies of Shakespeare. Prerequisite: An undergraduate course in Shakespeare.

653 Studies in Shakespeare: Comedy 3 hrs.
Selected comedies of Shakespeare. Prerequisite: An undergraduate course in Shakespeare.

660 Methods of Research in English 3 hrs.
An introduction to graduate study in English with emphasis on bibliographical work. Required of candidates for the M.A. in English.

661 Seminar in English 3 hrs.
Study of a problem involving an author, a period, or a genre. Prerequisite: ENGL 660. Required of candidates for the M.A. in English.

668 Literary Criticism 3 hrs.
A study of the major critical treatises. Required of candidates for the M.A. in English.
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.

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.

Geography (GEOG)
Horst, Chairman; Professors Heller, Jackman, Kirchherr, Raup, Vuichich; Associate Professors Dickason, Eichenlaub, Erhart; Assistant Professors Micklin, Quandt, Stoltman

COURSES IN SYSTEMATIC GEOGRAPHY
Open to Upperclassmen and Graduate Students

540 (540, 541) Studies in Political Geography 3 hrs.
Philosophy and applications of the field of political geography.

A. Principles of Political Geography. Principles and concepts are treated as they apply to the evolution of the modern state. Concepts such as the "organic state," boundaries and frontiers, the territorial sea and global relationships are treated in some detail.

B. National Power. The components of national power are analyzed according to political-geographic relationships.

543 Cultural Geography 3 hrs.
Techniques of spatial analysis applicable to the study of man and his adjustment to different environments. The place of origin, diffusion, and present distribution of selected cultural patterns will be traced with emphasis given to cultural traits which strongly influence human occupancy of the earth's surface.

544 (544, 545, 546) Studies in Economic Geography 2-3 hrs.
Presents world patterns of agriculture, manufacture, or transportation which link global production and consumption. In any term, the course focuses upon one of these three economic sectors.
A. Agriculture. Describes and analyzes the distribution of major crops and livestock, and their combinations in common farming operations. The spatial organization of agriculture through time is analyzed for selected areas.

B. Manufacture. Evaluates the general distribution and locational factors associated with selected industries, giving particular attention both to models of industrial location and to the empirical interrelation of economic, technological, and political elements affecting the locational decision.

C. Transportation. Emphasizes the historical evolution of transport systems in developed and developing nations, transport factors in location theory, techniques of transport analysis, the urban transport problem, and competitive and complementary characteristics of transport modes in differing political systems.

553 Water Resources and Man 3 hrs.
Examination of water resources management with emphasis upon rational development and utilization of available supplies. Topics include supply and demand, methods of supply augmentation (desalination, inter-basin transfers), water administration and policies, and various water problems together with their solutions.

555 Contemporary Issues in Resources Management 3 hrs.
Geographic analysis of selected contemporary natural resource and environment problems, such as questions of natural resource adequacy, environmental pollution, political and economic problems related to resource management, and individual studies of local environmental problems. Prerequisite: GEOG 350 or consent.

556 Studies in Land Use Planning 3 hrs.
Each of the courses listed below focuses on a major area of land-use planning. A student may receive credit for any or all of the offerings under GEOG 556.

Philosophy and objectives of land-use planning; review of relevant legislation affecting utilization and conservation of land; classification of land uses; field methods and mapping techniques required for description and analysis of land use patterns.

A. Urban Planning. Land use planning in American cities and metropolitan areas.

B. Regional Planning. Organization and plans of regional development programs.

C. Public Lands and Parks. Specific programs and policies relating to the preservation and/or development of government-controlled lands.

570 Cities and Urban Systems 3-4 hrs.
Study of processes and forms of urban settlement highlighting problems relating to 1) political and geographical realities of urbanized regions, 2) factors in city growth (or decline), 3) the sizes, functions, and geographical distribution of cities, and 4) population patterns in contemporary cities. Activities are designed to provide the student with experience in the use of source materials and field techniques utilized in urban geography.

Open to Graduate Students Only

620 Seminar in Physical Geography 2-3 hrs.
A review of 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 or several advanced courses in physical geography, geology or biology, or consent of instructor.

621 Studies in Climatology and Meteorology 3 hrs.

Studies at an advanced level in climatology and meteorology. Examination and application of dynamic, complex, and synoptic methods of climatic description. Particular emphasis is given to regional climatic and meteorological phenomena and their relation to the general atmospheric circulation. Prerequisites: GEOG 105 and 225, or consent.

646 Analysis of Primary Resource Utilization in Developing Nations 2-3 hrs.

Critical examination of the resource base of developing nations in the tropical and sub-tropical realms, with particular consideration being given to political, economic, and cultural forces affecting resource development. General themes will be developed through a study of current approaches in the measurement and mapping of resources, and examination of representative plans for regional and economic development. Students will prepare case studies in their area of concentration.

670 Seminar in Urban Geography 2-3 hrs.

A review of the current literature and recent methodological developments in the field of urban geography. Prerequisite: GEOG 570 or consent.

COURSES IN REGIONAL GEOGRAPHY

Open to Graduate Students Only

510 Anglo-America 3 hrs.

A graduate level introduction to the physical and cultural patterns of the United States and Canada. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 380.

511 South America 3 hrs.

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

512 Middle America 3 hrs.

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

513 Western and Southern Europe 3 hrs.

Intensive regional study of these Western European nations situated west of the Iron Curtain. The physical elements (climate, landforms, resources, etc.) are examined and the associated cultural elements are identified. Emphasis is placed upon the social and economic activities of contemporary Western Europe. May not be taken for credit if student has credit for GEOG 383.

Introduction to the physical, cultural and economic geography of the U.S.S.R. and Eastern Europe. The primary focus is the Soviet Union with an emphasis on the characteristic spatial patterns and relationships found within the country. May not be taken for credit if student has credit for GEOG 384.

515 Southeast Asia  3 hrs.

A graduate level introduction to selected physical and cultural environments of Southeast Asia (Burma, Thailand, Malaysia, Indonesia, and Indo-Chinese territories, and the Philippines). Characteristics and interrelationships of population growth, the development of the agrarian base, and the utilization of industrial resources are examined in view of evolving political and cultural patterns. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 389.

516 Middle East and North Africa  3 hrs.

Study of the diversity and uniformity -- both physical and cultural -- of the Middle East and Africa north of (and including) the Sahara. Special attention is given to aridity problems, economic development, petroleum. Arab re-unification movements, and the impact of the Muslim World on the current political scene. May not be taken for credit if student has credit for GEOG 387.

517 Middle and South Africa  3 hrs.

General survey of the broad physical realms and the background of contemporary political geography of Africa south of the Sahara; followed by interpretive studies of the major regions and states based on an examination of population distribution, the characteristics of subsistence and commercial agriculture, the availability of power and mineral resources, patterns of transportation, and current programs for regional development. May not be taken for credit if student has credit for GEOG 386.

518 The Pacific Realm  3 hrs.

A graduate level introduction to the human and physical geography of the South and Central Pacific with concentration on Australia, New Zealand, Fiji, and Polynesia. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 385.

520 South Asia  3 hrs.

A graduate level introduction to selected physical and cultural environments of South Asia (India, Pakistan, Ceylon, and the Himalayan countries). Characteristics and interrelationships of population growth, the development of the agrarian base, and the utilization of industrial resources are examined in view of evolving political and cultural patterns. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for GEOG 390.

Open to Graduate Students Only

609 Studies in Regional Geography  2-3 hrs.

An investigation of selected topics in physical and human geography of one of the major regions, i.e., Latin America, Anglo-America, Europe, Africa, Asia, Southwest Pacific, or the Northlands. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment. Prerequisite: An appropriate introductory course at either the undergraduate or graduate level.
COURSES IN GEOGRAPHIC METHODOLOGY AND RESEARCH

Open to Upperclassmen and Graduate Students

560 Principles of Cartography 4 hrs.

Introduction to map construction with primary emphasis on the conceptual planning and designing of maps as a medium for communication and research. Lectures are supplemented by laboratory assignments to familiarize students with drafting techniques, lettering and symbolization, the concept of scale and scale transformation, map layout and design, processes of map reproduction, the employment and construction of projections, and the compilation procedures and execution of choropleth and dot maps. Two one-hour lectures and two two-hour laboratory periods.

566 Field Geography 4 hrs.

The theory and application of geographic techniques in field investigations; collection and analysis of field data; preparation and presentation of materials. The course is based primarily upon field observations. Prerequisite: GEOG 560 or consent.

580 Advanced Cartography 3 hrs.

Study of the more complex map projections, the compilation of data and the design of maps and graphs for research papers, and the application of statistical techniques in mapping geographic phenomena. Students are assigned special problems to develop their proficiency in the use of cartography as a tool in research. One hour lecture and 2 two-hour labs. Prerequisite: GEOG 560 or consent.

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 and Source Materials 3 hrs.

Introduction to problem formulation and research design in the investigation of geographical topics, and the preparation of research studies following currently accepted practices of professional geographers. Special attention to professional literature, geographical bibliographies, map intelligence, procedures of information retrieval and documentation, and data processing. Graduate students in geography are expected to complete this course before enrolling for thesis research. Prerequisite: Written consent of departmental adviser and instructor.
664 The Development of Geographic Thought 3 hrs.

The evolution of the philosophies, concepts and methods in use by geographers today is traced and evaluated. Prerequisite: An undergraduate major or minor in geography and written consent of instructor.

665 Seminar in Geographic Education 2-3 hrs.

Designed for the advanced student interested in analyzing problems related to the teaching of geography. Prerequisite: Consent of instructor.

668 Quantitative Methodology 3 hrs.

The application of quantitative concepts and methods to the solution of geographic problems. Critical review of research in quantitative geography ranging from the use of common statistical techniques to methods of model formation in the analysis of spatial interaction. Prerequisite: A course in statistics or consent.

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

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Geology (GEOL)

Straw, Acting Chairman; Professors Kuenzi, Schmaltz; Associate Professors Chase, Grace, McGehee, Passero; Assistant Professors Cronk, Harrison

Open to Upperclassmen and Graduate Students

502 Special Problems in Earth Science 2-4 hrs.

Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisite: Consent.

502 Economic Geology 3 hrs.

Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, mineral fuels, and water. Three lectures a week. Prerequisite: GEOL 335 or consent of instructor.

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 tenents of plate tectonics. Prerequisites: GEOL 131, 301 or 335.

532 Geomorphology 3 hrs.

A systematic study of the development of land forms as created by the processes of vulcanism, gradation, and diastrophism with interpretation of topographic and geologic maps, and aerial photographs. Prerequisite: GEOL 131 or consent.

533 Invertebrate Paleontology 4 hrs.

Morphology, classification, evolution, and stratigraphic distribution of major
invertebrate fossil groups. Three lectures and a three-hour laboratory. Prerequisite: GEOL 131, or consent.

534 Vertebrate Paleontology 4 hrs.

Comparative morphology, classification, stratigraphic distribution, and evolution of fossil fish, amphibians, reptiles, mammals, and birds. Three lectures and a three-hour laboratory. Prerequisite: GEOL 131, or consent.

535 Depositional Systems 4 hrs.

Processes, characteristics, and relationships among fluvial, deltaic, strand plain, lagoon, shelf, and slope terrigenous depositional systems; and platform carbonate depositional systems. Prerequisite: GEOL 131, or consent.

536 Glacial Geology 3 hrs.

A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial geology of the Great Lakes area. Prerequisites: GEOL 131, and consent of instructor.

540 Igneous and Metamorphic Petrology 4 hrs.

Advanced discussion of origins and positions of igneous and metamorphic rocks in light of recent experimental evidence and concepts of global tectonics. Prerequisites: GEOL 440 or equivalent.

543 Paleocology 3 hrs.

Study will include the ecology, life, habits and environmental interactions of ancient organisms. Prerequisites: GEOL 533 or BIOL 541.

555 Sedimentary Petrology 4 hrs.

Thin section and hand-specimen study of sandstones, mudrocks, carbonate rocks, and chemical sediments, with emphasis on paleogeographic, tectonic, environmental, and paragenetic interpretation. Prerequisites: GEOL 335, 535 or consent.

Open to Graduate Students Only

605 Regional Geology of the United States 3 hrs.

A systematic study of the general stratigraphy, structural geology, and geomorphology of the United States. Prerequisite: GEOL 532 or consent.

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 relation-
ships of physical, chemical, and biological principles to modern marine sediments and sedimentary processes. Prerequisite: GEOL 538 or the equivalent.

631 Geology for Teachers  2-4 hrs.
A study of the more common rocks, minerals and fossils and a consideration of rock structures and the development of landforms with special emphasis upon Michigan and the Great Lakes Basin. Designed for elementary teachers. Not to be used as credit for graduate programs in Earth Science and Teaching of Science.

634 Research in Geology  1-4 hrs.
Advanced readings or research in an area to be selected after consultation with a supervising staff member. May be repeated for credit (for no more than a total of six hours).

650 Topics in Earth Science  2-4 hrs.
An intensive study of specific subjects in the area of Earth Science as listed. Prerequisite: Consent of instructor. Subject offered during a semester or term will be announced in advance.

660 Seminar in Earth Science  1 hr.
A seminar designed to provide students with the opportunity to examine and discuss important problems in Earth Science. Oral presentations will be required. May be repeated. Prerequisite: Consent.

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

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

History (HIST)
Breisach, Chairman: Professors Beech, Brown, Brunhummer, Castel, Cordier, Elasser, Gregory, Hammer, Maier, Mange, Mowen, Nahm, Nodel, Sommerfeldt; Associate Professors Burke, Carlson, Hahn, Hawks, Pattison, Schmitt; Assistant Professors Davis, Hannah, Houdek

I. COURSES DEALING WITH A RESTRICTED CHRONOLOGICAL PERIOD OR SPECIAL PHASE OF HISTORY

Open to Upperclassmen and Graduate Students

A. UNITED STATES HISTORY

514 Black History: The Impact of Black People on American Thought and Life  3 hrs.
Intellectuals and politicians have defined the place of black people in American history in ways that affect our understanding of the present. American writers, theologians, social scientists, and politicians have also contributed to current stereotypes. In this course, students will have an opportunity to explore "popular" interpretations of slavery, abolition, race-thinking, etc., as each has been used to explain recent events. The writings of men like Martin Delany, W.E.B. DuBois,
Marcus Garvey, and Malcom X challenge widely-held beliefs about the past and provide fresh perspectives on contemporary America.

516 The History of the United States Constitution 3 hrs.

The Constitution is the Supreme Law of the Land. But judges apply that law. Consequently judges exercise far more power in the United States than in any other nation. How and why did this occur? And with what results, good and bad?

518 History of United States Foreign Relations 3 hrs.

While this course traces the full scope of American foreign relations, from the American Revolution to the present, it emphasized diplomacy of the twentieth century. The course gives attention to major diplomatic problems, but it also considers such themes as the effect of personality and politics on foreign policy, and the various “schools” of diplomatic thought.

519 America and War 3 hrs.

The United States regards itself as a “peace-loving” nation. Yet it was born of war, has survived by war, and in modern times has been almost constantly at war. A knowledge of the military history of the United States is a key to understanding all of its history, both as it has unfolded and as it is unfolding.

520 Colonial America 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; and the reasons for, and the variety of American responses are examined. Efforts made by both British and American leaders to preserve the imperial connection are studied along with the gradual development of the American movement to independence. Military and diplomatic aspects of the Revolution are examined; and an attempt is made to evaluate societal changes brought by American independence.

522 The Age of Democracy and Expansion, 1798-1848 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 political leaders, social and economic aspirations, religious devotions, international hopes and fears, and popular entertainments.

527 Contemporary America: 1940 to the Present 3 hrs.

Beginning with the background to the Second World War, this course brings American history as close to the present as possible. It follows the nation’s change from detachment before the war to entanglement in the 1960’s in problems all over the world. It deals with the efforts of the nation and groups within the nation to cope with the enormous political, economic, and social problems of the decades after the war. The course considers conflicting opinion of various issues, seeks to view events from both the perspective of the present and the time of their occurrence.

B. HISTORY OF EUROPEAN NATIONS

534 Medieval France 3 hrs.

A study of the formation of the French people and nation during the thousand years which followed the fall of the Roman Empire in the 5th century A.D. Threatening this process were the disruptive forces of provincialism and invasion by foreigners. Contributing to its success were the growth of a unified church, a national monarchy, the expansion of a vigorous rural and urban economy, and the development of a national language and literature.

535 Medieval England 3 hrs.

The story of the growth of the English people from scattered tribes of Anglo-Saxon invaders in the 5th century into one of the most highly organized European nations by the 15th century. Basic to this growth were the creation of a powerful kingship based on a common law and Parliament, the establishment of a vigorous national church, the prosperity of countryside and town, and the development of a national language and literature.

536 Tudor-Stuart England: The Era of the Monarchy 3 hrs.

A study of the period when Great Britain breaks with her medieval past and becomes one of the most modern states in Western Europe after having progressed under the strong Tudor rulers, suffered under the obstinate early Stuarts, begun an empire, survived civil war and the Cromwellian republic, restored the monarchy under the late Stuarts, and plunged into the revolution which produced the Bill of Rights and representative government under a constitutional monarchy.

537 Hanoverian England: The Era of the Aristocracy 3 hrs.

The study of Great Britain during the years when, guided by the aristocratic class in cooperation with a limited monarchy, internal stability was established; the economic revolution and the unforeseen problems which it created were begun; her place as a major European power was guaranteed; her North American empire was lost; and the threat to her position by the French Revolution and Napoleon was met successfully.
538 Victorian England: The Era of the Middle Class

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

An exploration of the history of Great Britain during the crucial years of challenge to her position as a world power, to her position as mother country, to her democratic monarchy; and consideration of the ways in which these challenges were met, two world wars successfully fought, a Commonwealth organized with each member equal among equals, and a state responsible for the welfare of all subjects of the Crown from the cradle to the grave established in the socialist revolution after World War II.

540 Life in Tsarist Russia

Westernization, emancipation of the peasants, revolutionary movements, and the spiritual evolution of the Russian people during the eighteenth and nineteenth centuries.

541 The Soviet Union in World Affairs

Consideration is given to the various factors constituting the background necessary for the appreciation of the role of the Union of Soviet Socialist Republics in world affairs from 1917 to the present time. This includes a study of the geographical, ideological, political, economic, military, social, and human aspects of Soviet foreign policy. The nature of Soviet foreign policy as affected by the national and international events during the leadership of Lenin, Stalin, Khruschev, and Brezhnev-Kosygin is studied.

542 Nationalities in the Soviet Union

This course constitutes a study of the historical background and contemporary status of the principal groups in the Union of Soviet Socialist Republics. It deals with the implementation of the Communist Party credo of "national in form, socialist in content." Emphasis is placed on group social and cultural identity. Consideration is given to the implementation of the official amalgamated nationality concept.

544 Modern France

An examination of factors in French life in the 19th and 20th centuries fostering stability and instability, growth and stagnation, harmony and conflict, triumph and tragedy.

C. EUROPEAN HISTORY

551 Imperial Rome (The First Century)

A study in depth of Roman politics and culture from the close of the Republic through the reigns of the emperors Augustus, Tiberius, Caligula, Claudius, and Nero. Emphasis will be placed on use of original sources in shaping the history of the century 30 B.C. to 70 A.D.

552 The Medieval Church

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

553 Life in the Middle Ages 3 hrs.

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

554 The Renaissance 3 hrs.

Between 1300 and 1517 great changes in European life were brought about by the catastrophic Black Death, the activities of merchant venturers, the coming of gunpowder and diplomacy, the state as a new form of life as well as by new ideas about man, God, and the universe and by the geniuses of the brilliant Italian Renaissance (Petrarch, Giotto, Michelangelo, Leonardo da Vinci, and others).

555 The Reformation 3 hrs.

After 1517 the Western church broke apart and with it vanished the last remainder of European unity. Luther, Calvin, and Zwingli reshaped religious thought. Regional churches appeared. The Roman Catholic Church underwent a renewal. All of that was accompanied by bitter religious wars but also by early traces of the sciences, visionary social schemes, and a feverish artistic activity.

557 Seventeenth Century: Age of Grandeur and Violence 3 hrs.

An investigation into the tensions, conflicts, and paradoxes of an age in which the shock of new forces is undermining a traditional order.

558 Eighteenth-Century Europe 3 hrs.

A wide-ranging study of a creative period during which many modern institutions and values took form: social structure and economic development in the century; domestic politics and international relations; currents in religion and the arts; the Enlightenment.

559 The French Revolution and Napoleon 3 hrs.

Theories respecting the French and related revolutions, and the nature of revolution and of the revolutionary psychology; the 18th-century background; the moderate and radical phases of the Revolution proper; the rise and fall of the Napoleonic Empire.
560 Nineteenth Century Europe
4 hrs.
A study of the revolutionary currents pulsating through Europe in the 19th century, of the conflicts they engendered, and the profound changes they wrought.

562 Hitler's Europe, 1914-1945
3 hrs.
The first modern generation of Europe is associated with an era of unprecedented violence. The course is concerned with the experiences of people and the events of states that raise questions as to the dynamics of revolution, hate, idealism, propaganda, optimism, wars, economic ambitions, progress, and murder.

563 Europe since 1945
3 hrs.
The recovery of Europe from World War II; the movement toward European unity; the defense of Europe; and the role of Europe in the international community.

D. LATIN AMERICA

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

572 The Plata Region: Argentina, Paraguay, Uruguay
3 hrs.
The three nations herein explored offer an intriguing spectrum of the varieties of national experience to be found in the Latin American area. The range is from relatively static life and institutions throughout the period of nationhood to dynamic modernism in the same contexts. An effort is made to comprehend those factors which have contributed to and resulted in these differences.

E. THE FAR EAST

580 Traditional China
3 hrs.
A study of the highlights of the history and culture of pre-modern China with particular attention to her international relations, reform and rebellions as well as to social, intellectual, and institutional change.

581 Modern China
3 hrs.
A study of the rise of Chinese nationalism; the revolutionary movement of the Nationalists; the Kuomintang rule; the Japanese aggression in China; the rise of communism and Mao Tse-tung; the Great Leap Forward and Cultural Revolution in Communist China.

582 Japan's Transition from a Feudal State to a Modern Nation
3 hrs.
A study of political, economic, social, and cultural patterns and institutions of feudal Japan; the opening of Japan to the West; and the reformistic and revolutionary changes which transformed her into a modern nation.

583 Modern Japan (Japan: The Rise and Fall of a Militaristic Empire)
3 hrs.
A study of the growth of nationalism, colonialism, militarism, and imperialism in Japan; international relations of Japan; the fall and the Allied Occupation and reconstruction; Japan's new role in the world.
584 Modern Korea 3 hrs.
A study of the decline of the Yi dynasty; Korea's struggle against foreign encroachment; the era of Japanese colonial rule; the liberation of Korea; and the establishment of two Koreas.

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

F. AFRICA

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

588 Modern Africa 3 hrs.
Historical background of the major issues of contemporary Africa, including colonialism and neo-colonialism, Pan-Africanism, and nationalism. Examination of major problems including the Congo, Nigerian civil war, Algerian revolution, minority rule in southern Africa, etc.

II. GENERAL COURSES

592 Historical Literature 3 hrs.
Historical writings arise from a curiosity about the human condition. Can man do good? What is the source of evil in his life? What happens to man in social situations? Does man make his own Fate and does he deserve it? Historical writings suggest the problems in any search for truth, its description, and its evaluation. The course includes a survey of historical writings and an opportunity to read from within their wide variety.

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

594 War in the Modern World 3 hrs.
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.

595 History of War 3 hrs.
The history of war from the age of Louis XIV to the era of the World Wars. An examination of the evolution of war and the role of conflict in international relations.
III. SPECIAL COURSES

500 Problems in History 2-3 hrs.

The course is designed to show the usefulness of the historical approach for the understanding of the great and relevant issues confronting modern man. Multiple sections will be offered, each of which may deal with a different topic as listed in the Schedule of Classes.

510 Field Study in Michigan History 3 hrs.

511 Introduction to Museum and Archive Work 3 hrs.

Lectures, demonstrations, readings, discussion, and work experiences in museum and archive theory and technique introduce the student to the types of work curators of historical museums and archives do.

598 Independent Reading in History 2-3 hrs.

For the gifted student with special interests. The usual requirements are: a 2.7 minimum overall grade point average and a 3.0 minimum grade point average in all History courses. Reading on some selected period or topic under the supervision of a member of the History Department faculty, with the approval of the supervising instructor and the chairman of the department’s individualized courses prior to registration.

IV. COURSES OPEN ONLY TO GRADUATE STUDENTS

A. STUDIES IN HISTORY

Courses in which, through lectures, reading, reports, and discussion topics in an historical field are explored in depth. Where no field is indicated the course will permit students to pursue their study in a wide range of fields. The specific topics dealt with in a given semester will be indicated in the Schedule of Classes.

605 Studies in American History 3 hrs.

615 Studies in European History 3 hrs.

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

635 Studies in Historical Problems 3 hrs.

652 Studies in Medieval History 3 hrs.

B. SEMINARS

Courses which focus on research and the preparation of papers. The specific field of each seminar, when offered, will be indicated in the Schedule of Classes.

608 Seminar in American History 3 hrs.

618 Seminar in European History 3 hrs.

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

638 Seminar in History 3 hrs.
646 Seminar in Medieval History 3 hrs.

C. PROFESSIONAL COURSES

690 Historical Method 3 hrs.

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

692 Studies in Historical Literature 3 hrs.

Designed to acquaint the student with the major historical works in his designated field of special interest. Required of all candidates for the master's or specialist degree in History. Students enrolling should consult the graduate adviser.

699 Historical Essay 4 hrs.

An analytical and interpretive study to be written under the supervision of a member of the History faculty and selected in consultation with the graduate adviser.

D. Please refer to The Graduate College section for course descriptions for the following:

700 Master's Thesis 6 hrs.
710 Independent Research 2-6 hrs.
720 Specialist Project 2-6 hrs.

International and Area Studies

Fredric J. Mortimore, Director

The Institute of International and Area Studies (IHAS) was established by the Trustees and Administration of Western Michigan University to design, coordinate and administer interdisciplinary programs devoted to the study of cultures located geographically outside the continental United States. Pursuant to this mandate, the Institute, in subsequent years, has (1) facilitated the formation of African, Asian, Comparative/Cross-Cultural, Latin American and Slavic Studies programs at the University, (2) encouraged by various means curricular and staff development in the fields, of both comparative/cross-cultural and area studies, (3) coordinated, with the active support of participating departments, undergraduate and graduate-level programs in area and comparative/cross-cultural studies, (4) cooperated with governmental agencies in student exchange and visiting leader programs, and (5) conducted conferences, seminars, symposia and lecture series which had as their focus comparative and area concerns.

The Institute offers two graduate-level programs, the Master of Arts in International and Area Studies and the Specialist in Arts in International and Area Studies. Master’s degrees may be taken with major emphasis upon either (1) African Studies, (2) Asian Studies, or (3) Comparative/Cross-Cultural Studies, while Specialist programs are offered with special emphasis upon either (1) African Studies, (2) Asian Studies, or (3) Comparative/Cross-Cultural studies.

The faculty members involved in International and Area Studies are listed below with their disciplines:
African Studies Program

Bruce M. Haight (General Studies), Head; Edward T. Callan (English); Gurdino Dadlani (Social Work); Ronald W. Davis (History); Thomas Dube (General Studies); David Ede (Religion); William Garland (Anthropology); Robert Hannah (History); Jeanette Irvin (Black Americana Studies); Dorotha Kercher (Waldo Library); Eugene C. Kirchherr (Geography); Fredric J. Mortimore (IAS); Joseph Muthiani (Linguistics); Robert A. Palmatier (Linguistics); Claude S. Phillips, Jr. (Political Science); Evan L. Richards (General Studies); Visho B. L. Sharma (General Studies); John P. Willis (Anthropology); and Wilford Young (Black Americana Studies).

African Studies Core Courses

<table>
<thead>
<tr>
<th>Department</th>
<th>Course Numbers</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Anthropology</td>
<td>545</td>
<td>Topics in Ethnology: Africa</td>
<td>3 hrs.</td>
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<td></td>
<td>598</td>
<td>Readings in Anthropology: Africa</td>
<td>1-4 hrs.</td>
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<tr>
<td>Arts and Sciences</td>
<td>500</td>
<td>Black Humanism</td>
<td>3 hrs.</td>
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<td></td>
<td>504</td>
<td>Foreign Studies Seminar: Africa</td>
<td>1-6 hrs.</td>
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<tr>
<td>Economics</td>
<td>585</td>
<td>Economics of Sub-Saharan Africa</td>
<td>3 hrs.</td>
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<td></td>
<td>598</td>
<td>Readings in Economics: Africa</td>
<td>1-3 hrs.</td>
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<tr>
<td>Geography</td>
<td>516</td>
<td>Middle East and North Africa</td>
<td>3 hrs.</td>
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<td>517</td>
<td>Middle and South Africa</td>
<td>3 hrs.</td>
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<td></td>
<td>598</td>
<td>Readings in Geography: Africa</td>
<td>1-3 hrs.</td>
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<td></td>
<td>609</td>
<td>Studies in Regional Geography: Africa</td>
<td>2-3 hrs.</td>
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<tr>
<td>History</td>
<td>587</td>
<td>Ancient and Medieval Africa</td>
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<td>588</td>
<td>Modern Africa</td>
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<td></td>
<td>598</td>
<td>Reading in History: Africa</td>
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<td>625</td>
<td>Studies in History of Non-Western World</td>
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<td>628</td>
<td>Seminar in History of Non-Western World</td>
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<td>Linguistics</td>
<td>505</td>
<td>Basic Critical Languages</td>
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<td>Swahili</td>
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<td>Arabic</td>
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<td>Intermediate Critical Languages</td>
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<td>509</td>
<td>Writing Critical Languages</td>
<td>4 hrs.</td>
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<tr>
<td>Political Science</td>
<td>549</td>
<td>Problems of Foreign Political Systems: Africa</td>
<td>3-4 hrs.</td>
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<td>598</td>
<td>Studies in Political Science: Africa</td>
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<td>640</td>
<td>Seminar: Foreign Political Systems: Africa</td>
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<td>644</td>
<td>Seminar: Political Modernization: Africa</td>
<td>3 hrs.</td>
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<tr>
<td>Religion</td>
<td>500</td>
<td>Historical Studies: Islam in the Modern World</td>
<td>2-4 hrs.</td>
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<td>500</td>
<td>Historical Studies: Islamic Mysticism</td>
<td>2-4 hrs.</td>
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<td></td>
<td>598</td>
<td>Readings in Religion: Africa</td>
<td>1-4 hrs.</td>
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</table>
Social Science
504 Social Studies Seminar: East Africa 6 hrs.
605 Seminar in Area Studies: Africa 3 hrs.

Sociology
533 Comparative Institutional Studies: Africa 3 hrs.
535 Changing Social Systems: Sub-Saharan Africa 3 hrs.

Asian Studies Program
Robert L. Shafer (English), Head; Lilia Chen (Linguistics); David G. Dickason (Geography); D. P. S. Dwarikesh (Linguistics); Byron H. Earhart (Religion); David Ede (Religion); Nancy E. Falk (Religion); Alfred K. Ho (Economics); Charles O. Houston (General Studies); Chester L. Hunt (Sociology); C. I. Eugene Kim (Political Science); David Lewis (Sociology); Reinhold Löffler (Anthropology); Robert F. Maher (Anthropology); Fredric J. Mortimore (ILAS); Andrew C. Nahm (History); William R. Rosegrant (English); Martin H. Ross (Sociology); Visho B. L. Sharma (General Studies); Bonnie Sigren (General Studies); Subhash Sonnad (Sociology); Yasuko Whitmore (Linguistics); and Lawrence Ziring (Political Science)

Asian Studies Core Courses

Anthropology
545 Topics in Ethnology: Asia 3 hrs.
598 Readings in Anthropology: Asia 1-4 hrs.
603 Studies in Physical Anthropology: Asia 3-4 hrs.

Economics
587 Studies in Asian Economics 3 hrs.
588 Economic Development: Asia 4 hrs.
598 Readings in Economics: Asia 1-3 hrs.

Teacher Education
552 Comparative Education: Asian Education 3 hrs.

English
519 Studies of Non-Western Literature in Translation: Asian Literature 4 hrs.
555 Studies in Major Writers (Asian) 4 hrs.
555 Studies in Major Writers (Asian) 4 hrs.

Geography
515 Southeast Asia 3 hrs.
520 South Asia 3 hrs.
598 Readings in Geography: Asia 1-3 hrs.
609 Studies in Regional Geography: Asia 3 hrs.

History
580 Traditional China 3 hrs.
581 Modern China 3 hrs.
582 Japan's Transition from a Feudal State to Modern Nation 3 hrs.
583 Modern Japan 3 hrs.
584 Modern Korea 3 hrs.
585 Southeast Asia in the Twentieth Century 3 hrs.
598 Reading in History: Asia 2-3 hrs.
625 Studies in History of Non-Western World 3 hrs.
628 Seminar in History of Non-Western World 3 hrs.
Linguistics
506 Intermediate Critical Languages
  Chinese
  Hindi-Urdu
  Japanese
4 hrs.
4 hrs.
4 hrs.

507 Advanced Critical Languages
4 hrs.
508 Reading Critical Languages
4 hrs.
509 Writing Critical Languages
4 hrs.
575 Studies in Languages of the World: Asian Languages
3 hrs.

Political Science
544 The Military and Political Systems
3 hrs.
545 Theories of Political Development
3 hrs.
548 Asian Communism
3 hrs.
549 Problems of Foreign Political Systems: Asia
3-4 hrs.
598 Studies in Political Science: Asia
1-4 hrs.
640 Seminar: Foreign Political Systems: Asia
3 hrs.
644 Seminar: Political Modernization: Asia
3 hrs.

Religion
500 Historical Studies in Religion: Designated Topics
2-4 hrs.
598 Readings in Religion: Asia
1-4 hrs.

Social Science
605 Seminar in Area Studies: Asia
3 hrs.

Sociology
531 Studies in Social Change: Asia
3 hrs.
533 Comparative Institutional Studies: Asia
3 hrs.
534 Studies in Ethnic Relations: Asia
3 hrs.
598 Directed Individual Study
2-6 hrs.
616 Studies in Social Problems: Asia
3 hrs.

Comparative/Cross-Cultural Studies

Comparative/Cross-Cultural Studies Core Courses

Anthropology
534 Peasant Societies in Cross-Cultural Perspective
3 hrs.
536 Cultural Evolution
3 hrs.
537 Political Anthropology
3 hrs.
538 Legal Anthropology
3 hrs.
540 Cultural Ecology
3 hrs.
575 Studies in Languages of the World
3 hrs.
598 Readings in Anthropology: Comparative Studies
1-4 hrs.
College of Arts and Sciences

Economics
508 Institutional Economics 4 hrs.
539 Economic Anthropology 3 hrs.
588 Economic Development 4 hrs.
598 Readings in Economics: Comparative Studies 1-3 hrs.
688 Issues in Economic Development 3 hrs.

Geography
540 Studies in Political Geography 3 hrs.
543 Cultural Geography 3 hrs.
544 Studies in Economic Geography 2-3 hrs.
570 Cities and Urban Systems 3-4 hrs.
598 Readings in Geography: Comparative Studies 1-3 hrs.
646 Analysis of Primary Resource Utilization in Developing Nations 3 hrs.
670 Seminar in Urban Geography 2-3 hrs.

History
594 War in the Modern World 3 hrs.
595 History of War 3 hrs.

Linguistics
575 Studies in Languages of the World 3 hrs.

Political Science
542 Administration in Developing Countries 3 hrs.
545 Theories of Political Development 3 hrs.
549 Problems of Foreign Political Systems 3-4 hrs.
556 Comparative Foreign Policy 3 hrs.
560 Comparative Political Ideology 3-4 hrs.
598 Studies in Political Science: Comparative Studies 1-4 hrs.
642 Seminar: Cross-National Political Analysis 3 hrs.
644 Seminar: Political Modernization 3 hrs.
650 Seminar: International Relations 3 hrs.
660 Seminar: Political Thought 4 hrs.

Social Science
506 Studies in the Non-Western World 2-3 hrs.
605 Seminar in Area Studies 3 hrs.
606 Colloquium in International and area Studies 3 hrs.

Sociology
532 Introduction to Comparative Sociology 3 hrs.
598 Directed Individual 2-6 hrs.
615 Patterns of Intercultural Adjustment 3 hrs.

Latin American Studies Program
Leila Bradfield (Sociology), Head; Elsa Alvarez (Languages); David Chaplin (Sociology); Peter Eckstein (Economics); Edward Elsasser (History); Ernestene Green (Anthropology); David Hanson (Political Science); Oscar Horst (Geography); Herb Jones (Languages); Fredric J. Mortimore (IASS); James Schellenberg (Sociology); Robert Jack Smith (Anthropology); Stanley West (Anthropology); Lewis Walker (Sociology)

Latin American Studies Core Courses

Anthropology
501 Rise of Civilization: Mesoameria 3 hrs.
545 Topics in Ethnology: Latin America  3 hrs.
598 Readings in Anthropology: Latin America  1-4 hrs.

Economics
589 Economics of Latin America  3 hrs.
598 Readings in Economics: Latin America  1-4 hrs.

Geography
511 South America  3 hrs.
512 Middle America  3 hrs.
598 Readings in Geography: Latin America  1-4 hrs.
609 Studies in Regional Geography: Latin America  3 hrs.

History
571 Mexico: The Building of a Nation  3 hrs.
572 The Plata Region: Argentina, Paraguay, Uruguay  1-4 hrs.
598 Readings in History: Latin America  1-4 hrs.

Language
560 Studies in Spanish Literature:
   Spanish-American Short Story  3 hrs.
560 Studies in Spanish Literature:
   Contemporary Spanish-American Novel  3 hrs.
603 Spanish-American Modernism  3 hrs.

Political Science
549 Problems of Foreign Political Systems: Latin America  4 hrs.
598 Readings in Political Science: Latin America  1-4 hrs.
640 Seminar in Foreign Political Systems: Latin America  3 hrs.

Sociology
534 Studies in Ethnic Relations: Latin America  3 hrs.
598 Directed Individual Study  2-6 hrs.

Latin American Studies Cognate Courses

Anthropology
534 Peasant Societies in Cross-Cultural Perspective  3 hrs.

Economics
588 Economic Development  4 hrs.
688 Issues in Economic Development  3 hrs.

Political Science
545 Theories of Political Development  3 hrs.
644 Seminar: Political Modernization  3 hrs.

Sociology
515 Social Conflict  3 hrs.
554 Sociological Analysis of Population  3 hrs.
556 Social Stratification  3 hrs.

Modern and Classical Languages (LANG)
Cole, Chairman; Professors Coutant, Ebling, Osmun; Associate Professors Alvarez, Cardenas, Giedeman, Jones; Assistant Professors Felkel, Gardiner, Griffin, Hammack, Kissel, Krawutschke, McGranahan, Orr, Reish, Teichert, Wyatt
LANGUAGE TEACHING COURSES

Open to Upperclassmen and Graduate Students

LANG 558 Modern Language Instruction (in French, German, Spanish, or other language) 3 hrs.

Required for modern language teaching majors; recommended for teaching minors. The principles underlying language learning and teaching methodology are treated, with particular attention to the audiolingual method of instruction. Emphasis is placed on practical problems encountered by the language teacher. Preferably, students should complete this course before beginning directed teaching. These methods courses will be offered regularly.

The comparable methods course for Latin 557, Teaching of Latin, is described under Latin offerings.

Open to Graduate Students Only

LANG 610 Applied Linguistics in the Teaching of Foreign Languages (French, German, Spanish) 3 hrs.

The application of modern linguistic concepts and descriptive techniques to the presentation of phonology, morphology, syntax and lexical problems in French (German, Spanish), particularly at the secondary level of instruction. The ultimate objective is to make the teacher sensitive to problems involved in the presentation and acquisition of structure. Prerequisite: LANG 558 or equivalent.

CRITICAL LANGUAGES — See LINGUISTICS for course descriptions

505 Basic Critical Languages
506 Intermediate Critical Languages
507 Advanced Critical Languages
508 Reading Critical Languages
509 Writing Critical Languages

FRENCH (FREN)

Open to Upperclassmen and Graduate Students

FREN 544 Seminar in France 4 hrs.

A summer study of French language, literature, and culture concentrated at Grenoble and Paris. Designed especially for teachers and advanced college students of French, the course consists of formal study at the University of Grenoble with regularly scheduled lectures and discussions in the French language on questions relating to French history, institutions, social problems, linguistics, and teaching methods. The session at Grenoble is supplemented by an organized inspection of cultural monuments in Paris with full explanations by an instructor for all points visited. Each student submits a term paper investigating one phase of his studies of particular interest to him. Graduate or undergraduate credit.

FREN 550 Independent Study in French 1-3 hrs.

Directed, individual study of a specific topic in a French literary or linguistic area. Departmental approval required for admission. GPA of 3.0 in major.

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

FREN 552 Advanced French Conversation 3 hrs.
Intensive practice with spoken French. Prerequisite: Six hours of FREN 316-317 or equivalent.

FREN 560 Studies in French Literature 3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: Six hours selected from FREN 328, 329, 550. Representative topics which may be treated in this area include:

- Medieval Literature. Outstanding works from various genres of the medieval period.
- Renaissance Literature. Outstanding works from the period, to include Montaigne, Rabelais, and the Pleiade.
- Seventeenth Century Literature. Preclassic period: Reforms and Malherbe, Preciosité. Descartes, beginnings of classical drama, and Corneille. Also, classic period: significant works from the beginning of the reign of Louis XIV to his death.
- Eighteenth Century Literature. Analysis of outstanding works of the period.
- Nineteenth Century Literature. Studies in realism and naturalism.

Open to Graduate Students Only

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

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

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

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

FREN 604 Modern French Poetry 3 hrs.
Evaluations of French poetry from the end of the Romantic period to the present. School emphasis will be given to major trends and leading personalities in various schools.

FREN 620 Seminar 2-4 hrs.
Theme, genre or author selected from a particular period, or a topic from a linguistic area.
GERMAN (GER)

Open to Upperclassmen and Graduate Students

GER 528 Survey of German Literature 3 hrs.
A comprehensive study of German literature from its beginning through Romanticism. Prerequisites: GER 316 or 317, and 325 or equivalent.

GER 529 Survey of German Literature 3 hrs.
A comprehensive study of German literature from German Realism to the present. Prerequisite: GER 316, 317 and 325 or equivalent.

GER 550 Independent Study in German 1-3 hrs.
Directed, individual study of a specific topic in a German literary or linguistic area. Departmental approval is required for admission. Prerequisite: One course at 500-level; preferably among GER 528, 529 and 560.

GER 552 Advanced German Composition 3 hrs.
Intensive practice in composition and stylistics directed towards appreciation of literary and other written expression in German with work in free composition at an advanced level. Prerequisites: GER 316 and 317 or equivalent.

GER 553 Advanced German Conversation 3 hrs.
Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: GER 316 and 317 or equivalent.

GER 559 History of the German Language 3 hrs.
Survey of the development. Prerequisite: Six hours of 300-level German or above.

GER 560 Studies in German Language 3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisites: German 316, 317, 326, and 327 or equivalent. Representative topics which may be treated in this area include:

The Novelle — Survey of the development with representative selections.
Lyric Poetry — Survey of the development with significant selections.
Nineteenth Century Drama — Primarily Kleist, Grillparzer, Hebbel, and Hauptmann.
Twentieth Century Drama — Representative selections.

Open to Graduate Students Only

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

GER 601 Faust 3 hrs.
Goethes Faust. Significant selections from parts I and II of the poem.
GER 620 Seminar  
Ausgewählte Gegenstände aus dem Gebiete der Germanistik. Topic to be selected from a German literary or linguistic area.

GER 640 Introduction to Middle High German  
Introduction to Middle High German language and Literature.

LATIN (LAT)

Open to Upperclassmen and Graduate Students and Others by Permission of the Instructor.

LAT 550 Independent Study in Latin  
Directed individual study of a specific topic in Latin literary or linguistic area. Departmental approval required for admission.

LAT 552 Latin Writing  
Practice in the fundamentals of correct expression. Required for Latin majors. Prerequisite: LAT 324 or equivalent.

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

LAT 560 Studies in Latin Literature  
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: LAT 324 or equivalent. Representative topics which may be treated in this area include:

Satire — Rome as pictured in the conversations of Horace and the invectives of Juvenal. Readings on the origins and development of satire as a genre.

History — Reading and appraisal of Livy and of Tacitus as historians and literary artists.

Bucolic Poetry — Readings from Vergil's Eclogues and Georgics plus selections from later writers of bucolic poetry and discussion of its development as a literary form.

Lyric and Elegiac — Broad readings in Roman poetry, centering around Catullus, Ovid, Martial and the other poets of love. Discussion of the origin and influence of elegy as a poetic form.

Medieval Latin — A study of the period 500-1500 A.D. when Classical Latin was blending into the new vernaculars to form eventual Romance Languages. Prose and poetic readings include a variety of themes reflecting the intellectual, cultural, and religious thinking of the times.

Open to Graduate Students Only

LAT 601 Roman Novel  
A study of the history and development of the Greek romance and the Roman novel. Extended readings of Petronius's Satyricon and Apuleius's Metamorphoses in Latin.
LAT 602 Comparative Classical Grammar
3 hrs.
Evolution, history and mutual relations of the Indo-European group of languages, especially Greek, Latin, and Sanskrit and their systems of phonology, inflection, syntax, and semantics.

LAT 620 Cicero: The Man and his Times
3 hrs.
A critical study of Cicero's works for the information they give concerning Roman public and private life and the political history of the period.

LAT 621 Lucretius: De Rerum Natura
3 hrs.
A study of Lucretius' De Rerum Natura both in the tradition of Epicurean philosophy and as a landmark in the development of the Latin didactic epic.

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

RUSSIAN (RUSS)

Open to Upperclassmen and Graduate Students

RUSS 550 Independent Study in Russian
1-3 hrs.
Directed, individual study of a specific topic in a Russian literary or linguistic area. Departmental approval required for admission.

RUSS 552 Advanced Russian Composition and Conversation
3 hrs.
Practice in composition and stylistics directed towards a command of literary and other written expression in Russian combined with training in conversational Russian with an emphasis on the colloquial idiom. Prerequisites: RUSS 316, 317 and 328.

RUSS 560 Studies in Russian Literature
3 hrs.
Topic varies according to genre, author, and period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus a student may take any or all of the offerings at various times. Prerequisites: RUSS 316, 317, 328, 375. Topics treated in this area include but are not restricted to:

- The Poetry of Pushkin: Emphasis on the tales and Byronic narratives.
- Classic Russian Short Stories: Emphasis on the works of Turgeniev, Gogol, Tolstoy, and Leskov.
- Modern Russian Short Story: Emphasis on Bunin, Paustkovsy, Solzhenitsyn and Fedin.

SPANISH (SPAN)

Open to Upperclassmen and Graduate Students

SPAN 526 Survey of Spanish Literature to the 18th Century
3 hrs.
A survey of Spanish literature from its origin to, and including, the seventeenth century. Prerequisites: SPAN 316, 317 and 325.
SPAN 527 Survey of Spanish Literature from the 18th Century to the Present 3 hrs.
A survey of Spanish literature from the eighteenth century to the present. Prerequisites: SPAN 316, 317 and 325.

SPAN 528 Survey of Spanish American Literature to 1910 3 hrs.
A survey of Spanish American literature from 1492 to, and including, the era of Modernismo (1910). Prerequisites: SPAN 316, 317 and 325.

SPAN 529 Survey of Spanish American Literature from 1910 to the Present 3 hrs.
A survey of Spanish American literature from 1910 to the present. Prerequisites: SPAN 316, 317 and 325.

SPAN 550 Independent Study in Spanish 1-3 hrs.
Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission.

SPAN 552 Advanced Spanish Grammar and Composition 3 hrs.
An advanced review of the intricacies and problems of Spanish Grammar and a study of syntax, stylistics, and methods of expressing oneself in original Spanish. This course is designed to be taught in Spanish. Prerequisites: SPAN 316, 317, and one additional 300-level course. At least three hours of 526, 527, 529 are recommended.

SPAN 553 Advanced Spanish Conversation 3 hrs.
Intensive practice to reinforce and expand the basic oral communication skills and to develop flexible and idiomatic oral expression. Prerequisites: SPAN 316, 317 and one additional 300-level course. At least three hours of 526, 527, 528 or 529 are recommended.

SPAN 560 Studies in Spanish Literature 3 hrs.
Topic varies according to genre, author, or period and will be announced. Each of these courses carries separate credit, although all are listed under 560. Thus, a student may take any or all of the offerings at various times. Prerequisite: Three hours of SPAN 526, 527, 528, 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 — Development of the regional novel from Fernan Caballero through Blasco Ibanez.
Generation of 98 — Thought and works of typical representatives such as Unamuno, Ortega y Gasset, and Azorin.
Contemporary Theater — Evolution and analysis of the characteristics.
Spanish-American Short Story — Significant short stories along with the cultural and social background.
Contemporary Spanish-American Novel — The twentieth century novel along with the cultural and social background.
Open to Graduate Students Only

**SPAN 600 Golden Age Prose**
Study and Comparison of the major prose types of the period with special attention to the picaresque novel.

**SPAN 602 Contemporary Spanish Novel**
Study of forms and trends.

**SPAN 603 Spanish-American Modernism**
Study of the rise and development of major works of the period.

**SPAN 606 Medieval Spanish Literature**
Linguistic and literary analysis from the time of Cid to the fifteenth century.

**SPAN 608 Nineteenth and Twentieth Century Spanish Poetry**
Study of trends from Romanticism to present times and analysis of works of the major poets.

**SPAN 620 Seminar**
Topic to be selected from a Hispanic literary or linguistic area.

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

**LANG 700 Master's Thesis**
6 hrs.

**LANG 710 Independent Research**
2-6 hrs.

**Linguistics (LING)**
Palmatter, Chairman; Associate Professors Hendriksen, Dwarikesh; Instructor Muthiani

**GENERAL LINGUISTICS COURSES**
Open to Upperclassmen and Graduate Students

**500 Introduction to Linguistics**
An introduction to modern linguistic theory and to the application of that theory to linguistically-related disciplines.

**510 (400) Methods of Teaching English as a Second Language**
Study of the application of linguistics to the teaching of English to non-native speakers, with emphasis on current methods and materials for instruction and testing.

**540 Generative Grammar**
An examination of the theories of transformational grammar and generative semantics, and a study of their origins, development, modifications, and applications.
551 (550) Psycholinguistics 3 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 (550) Sociolinguistics 3 hrs.
A systematic study of the linguistic correlates of social behavior and the influence of society on the nature of language.

571 (575) Languages of Asia 3 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.

572 (575) Languages of Africa 3 hrs.
A general survey of African languages — their relationship, classification, and geographical distribution; their national official status in changing Africa; their influence on and by foreign languages; and the problems involved in their use in education and literature.

580 Linguistic Field Techniques 3 hrs.
Interview techniques for the elicitation of oral language data, and methods of analysis of the data into significant linguistic units for their eventual arrangement in the form of a grammar and dictionary. Prerequisite: Consent of instructor.

598 Readings in Linguistics 1-4 hrs.
An opportunity for advanced students with good scholastic records to pursue the independent study of a linguistic subject not specifically covered by any of the courses in the Linguistics Department. Prerequisite: Permission of the instructor and chairman.

CRITICAL LANGUAGES COURSES

A "critical" language is 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
- Polish
- Serbo-Croatian
- Swahili

Open to Upperclassmen and Graduate Students

505 (500) Basic Critical Languages 4 hrs.
Study of a contemporary critical language at the elementary level, utilizing realistic conversations based on frequently encountered sociocultural situations. The writing system will be introduced at an appropriate time, depending on the nature of the individual language.

506 Intermediate Critical Languages 4 hrs.
Continuation of LING 505, with greater attention to making the student
self-reliant in conversation and to increasing his reading and writing skills with the help of a dictionary. Prerequisite: LING 505.

507 Advanced Critical Languages 4 hrs.
Continuation of LING 506, with greater emphasis on the grammatical structure of the language and on the development of more advanced reading and writing skills. Prerequisite: LING 506.

508 Reading Critical Languages 4 hrs.
Intensive practice in reading literature, newspapers, and other literary materials in the critical language, including sources from the student's major field of study. Prerequisite: LING 507.

509 Writing Critical Languages 4 hrs.
Intensive practice in writing a critical language to improve the student's ability to express himself effectively and to develop an individual style of composition. Prerequisite: LING 507.

Mathematics (MATH)

Clarke, Chairman; Professors Alavi, Chartrand, Gioia, Hannon, Hsieh, Leja, Lick, McCully, Meagher, Petro, Powell, Seber; Associate Professors Belfko, Buckley, Eenigenburg, Goldsmith, Kapoor, Northam, Riley, Schreiner, Sievers, Stoddart, Stoline, Turner, White, Wright, Yang; Assistant Professors Fialkow, Hirsch, Iman, Laing, Nelson, Williams

Open to Upperclassmen and Graduate Students

506 Programming for Computers 3 hrs.
Designed to give preparation in the organization and general use of high speed computing machines used in scientific and engineering computations. Two computer languages will be discussed and used to prepare programs. Problems such as exponential, multiplication and inversion of matrices, numerical integration, and solution of differential equations will be prepared for the computer. Prerequisite: MATH 230, or 272, or 222.

507 Numerical Analysis 3 hrs.
Numerical methods involving polynomial evaluation, series approximations, numerical integration, interpolation solution of linear and differential equations, linear programming, least squares and minimax approximations. Topics include: Chebyshev polynomials, Legendre polynomials, Weierstrass Theorem, Bernstein polynomials, Runge-Kutta methods, Generalized Rolle's Theorem, Taylor’s Theorem, Newton's method, False Position method, economization of power series, Minimax Theorem, forward differences, central differences, Simpson's rule, Boole's rule, and predictor-corrector methods. Prerequisite: MATH 506 (MATH 223 or 274 recommended)

508 Assembly Language 3 hrs.
A study of MACRO-10, the assembly language of the PDP-10 computer. Prerequisite: MATH 506.

509 Data Structures 3 hrs.
This course introduces and compares some of the alternatives for representing and manipulating data. Structures studied will include stacks, queues, deques, linked lists, circular lists and trees as well as sequential storage. Topics will include
traversals, hash functions, Boolean functions, graphs and garbage collection. Presentation will be independent of specific application areas but students will be required to do several programming problems. Prerequisite: MATH 506.

508 Automatic Programming Systems 3 hrs.
A thorough study of the internal organization of the Fortran Compiler. Each student will be required to construct a compiler. Prerequisite: MATH 506.

520 General Topology I 3 hrs.
Topics include: separation axioms, continuity, compactness, connectedness, product and quotient spaces, metric spaces. Prerequisite: MATH 570 or permission of instructor.

530 Linear Algebra 3 hrs.
Properties of finite dimensional abstract vector spaces, linear transformations, and matrix algebra are studied. Prerequisite: MATH 330 or 333.

540 Advanced Geometry 3 hrs.
Topics to be selected from projective geometry, algebraic geometry, differential geometry, or non-Euclidean geometry. Prerequisite: Consent of instructor.

550 Teaching of Secondary Mathematics 3 hrs.
In this course consideration is given to curriculum problems and trends in secondary school mathematics and to specific problems of teaching mathematics effectively to secondary school students. Prerequisite: MATH 330 or 332.

552 Teaching of Elementary Mathematics 3 hrs.
Consideration is given to curriculum problems and trends in elementary school mathematics and to specific problems of teaching mathematics effectively to elementary school children. Prerequisite: MATH 150.

553 Participation in Elementary Mathematics Teaching 2 hrs.
Students will work cooperatively with an elementary school teacher in an elementary classroom in various aspects of helping children learn mathematics. The course will provide the prospective elementary teacher with an opportunity to work with small groups of young children and to observe them in mathematics learning. The student will be required to maintain a journal and meet weekly with a staff member supervising the course. Prerequisite: MATH 552.

560 Applied Probability 3 hrs.
A first course in probability for upper division and graduate students interested in applications. Topics will include: probability spaces, expectation, moment generating functions, central limit theorem, special discrete and continuous distributions. Applications will include reliability and production problems, and Markov chain methods. Not recommended for students who have taken MATH 362 or 660. Prerequisite: MATH 272 or 270 or 222.

562 Statistical Analysis I 4 hrs.
The first course in the sequence 562, 662 of applied statistics which combines both theory and applications. Topics include: elementary theory of estimation and hypothesis testing; the use of the normal, chi-square, F and t distributions in statistics problems involving means and variances; simple linear, multiple, curvilinear, non-linear, and stepwise regression; simple, multiple, and partial correlation; one way and two way analysis of variance; random and fixed effects; nested designs. Prerequisite: MATH 560 or 362.
567 Applied Statistics 4 hrs.
A continuation course in statistical methods. Emphasis on regression, ANOVA and multiple comparisons, orthogonal comparisons, multiple linear regression and simple experimental design. Extensive use of available stored statistical computer programs to analyze data. Not for mathematics graduate students. Prerequisite: MATH 260 or 360 or 363 or 366 or permission of instructor.

Students will study statistical methodology using case study and computer techniques. Prerequisite: MATH 567 or permission of instructor.

570 Advanced Calculus 3 hrs.
Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation, Riemann integral, sequences and series of functions. Prerequisite: MATH 310 or 332.

571 Foundations of Analysis 3 hrs.
Fundamental concepts of real analysis, functions of one variable, topology of $\mathbb{R}$, Riemann-Stieltjes integral. Prerequisite: Approval of adviser.

574 Introduction to Ordinary Differential Equations 3 hrs.
Methods of solution, linear differential equations, ordinary and singular points, series solutions, Bessel and Legendre functions, boundary value problems, systems of equations, non-linear equations. Prerequisite: MATH 230 and 274, or consent of instructor.

575 Introduction to Partial Differential Equations 3 hrs.
Quasi-linear equations of the first order, linear and quasi-linear equations of the second order, separation of variables and Fourier series; solutions of Laplace equations, heat equations and wave equations, as examples of elliptic, parabolic and hyperbolic equations. Prerequisite: MATH 574 or consent of instructor.

576 Introduction to Complex Analysis 3 hrs.
Complex numbers, elementary functions, differentiation of complex functions, integration, series, residue theory, conformal mappings. Graduate students should not elect both 576 or 676. Prerequisite: MATH 223 or 270 or 272.

580 Number Theory 3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of numbers-theoretic functions. Prerequisite: MATH 330 or 332.

595 Seminar in Elementary Mathematics Education 1-3 hrs.
Current curriculum problems in the area of elementary mathematics education are identified and discussed. Students are required to identify a problem and give both an oral and written report on research in that area. Prerequisite: MATH 552.

599 Independent Study in Mathematics 1-3 hrs.
Advanced students with good scholastic records may elect to pursue independently the study of some topic having special interest for them. Topics are chosen and arrangements are made to suit the needs of each particular student. Prerequisite: Approval of chairman of department.
Open to Graduate Students Only

601 Compiling Theory and Practice 3 hrs.
Classification of grammars and their properties. BNF, trees, relations, top-down versus bottom-up parsing. Simple precedence grammars, matrix techniques. Assignment of a two semester project on compiler writing. Prerequisite: Permission of Department.

602 Fourier Series and Boundary Value Problems 3 hrs.
Topics covered include Fourier Series and Fourier Integrals and a further study of boundary value problems with special functions beyond those covered in MATH 574 and 575. Prerequisites: MATH 574 and 570, or equivalent.

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.

604 Operational Mathematics 3 hrs.
Topics covered include the study of the theory and application of Laplace Transform and other linear integral transformations. Prerequisites: MATH 575 and 576, or equivalent.

605 Theory of Optimization 3 hrs.
Necessary conditions for various classical and control problems, sufficient conditions, approximation. Prerequisite: MATH 571 and 574.

607 Complex Information Processing 3 hrs.
The computer as a device for symbol manipulation; data representation; complex problem solving and decision making by machine; mechanical pattern recognition; modeling of psychological processes; adaptive systems; and information retrieval. Prerequisite: MATH 506.

608 Linear Programming 3 hrs.
Linear inequalities; convex geometry; optimization in linear systems; zero-sum games; applications. Prerequisites: MATH 506, 530 and 570.

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.

620 General Topology II 3 hrs.
Topics include: continuous functions, uniform spaces, function spaces, paracompactness. Prerequisite: MATH 520.

621 Algebraic Topology 3 hrs.
Topics will include: simplicial complexes, homology and cohomology theories, including singular homology theory. Prerequisite: MATH 520.

623 Point Set Topology 3 hrs.
Complete metric spaces; local connectedness; Hahn-Mazurkiewicz Theorem; continuum theory; fixed point theorems; dimension theory. Prerequisite: MATH 520.
629 Studies in Topology 3-4 hrs.
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.

630 Abstract Algebra I 3 hrs.
A general study of groups, rings, and modules. A specific study of finite groups, polynomial rings, and Euclidean domains. Prerequisite: MATH 530.

631 Abstract Algebra II 3 hrs.
A continuation of 630. Modules, structure theory of modules over principal ideal domains, applications to finitely generated abelian groups, rational and Jordan canonical forms of a linear transformation. Bilinear and quadratic forms. Prerequisite: MATH 630.

632 Field Theory 3 hrs.
Algebraic and transcendental extensions of fields, Galois theory, and valued fields. Prerequisite: MATH 630.

636 Homological Algebra I 3 hrs.
This course and MATH 637 constitute a two semester study of homological algebra. Topics discussed include modules, homology of complexes, extensions and resolutions, categories and functors, adjoint functors, derived functors, and spectral sequences. Prerequisite: MATH 631.

637 Homological Algebra II 3 hrs.
A continuation of MATH 636. Prerequisite: MATH 636.

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

640 Graph Theory I 3 hrs.
Fundamental concepts; eulerian graphs; adjacency and incidence matrices; trees; the Reconstruction Problem. Prerequisite: Approval of adviser.

645 Studies in Graph Theory Variable
Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once. Prerequisite: Approval of instructor.

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

656 Teaching of College Mathematics 2 hrs.
In this course consideration is given to curriculum problems and trends in post-high school mathematics; research on specific problems of teaching mathematics effectively to college students will be emphasized. Prerequisite: Admission to the Specialist program in Mathematics.

Probability spaces; expectation; generating functions; special discrete and con-
continuous distributions; sampling and sampling distributions; asymptotic theory; point estimation; hypotheses; likelihood ratio tests; correlation and regression. Prerequisite: MATH 570 and 530 (possibility concurrently).

661 Multivariate Statistical Analysis 3 hrs.
A theoretical treatment of multivariate statistical problems and techniques. The topics of this course include: multivariate normal distribution theory; quadratic forms; multiple and partial correlation; sample correlation coefficient; Hotelling's T²-statistic; Wishart distribution; applications to tests of the mean vector and covariance matrix; general linear hypothesis. Prerequisite: MATH 660 or consent of instructor.

662 Statistical Analysis II 3 hrs.
A continuation of MATH 562. Topics include: multiple comparison procedures; two and three way ANOVA, repeated measurement designs; analysis of covariance; trend components, contrasts, etc.

664 Design of Experiments 3 hrs.
General linear hypotheses, complete and incomplete block designs, latin squares, factorial designs, confounding, fractional replication, etc. Prerequisite: MATH 530 and 662 or 660.

665 Theoretical Statistics 3 hrs.
Mathematical statistics is considered in a decision theoretic framework. The decision problem; loss and risk functions; Bayes procedures; minimax procedures; admissibility; complete classes; sufficiency; hypothesis testing and estimation.

667 Introduction to Random Processes 3 hrs.
This course is a treatment of random sequences and Markov processes. Discrete and continuous Markov processes; transition and rate matrices; Chapman-Kolmogorov equations; Kolmogrov systems; transient and limiting behavior; examples and illustrations: random walks, birth-and-death processes, etc.; stationary processes. Prerequisites: MATH 571, and 660 (or 560 or 362).

The subject matter for this course is variable. Advanced work is considered and organized around topics not usually considered in the other courses.

670 Measure and Integration 3 hrs.
The basic theory of measure and integration, including such topics as Lebesgue measure, abstract measures, measurable functions, Lebesgue spaces, Radon-Nikodym theorem. Prerequisite: MATH 571.

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

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

673 (572) Real Analysis 3 hrs.
Uniform convergence of sequences and series of functions; Fourier series;
functions of several variables; 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.

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: MATH 506.

681 Introduction to Computability and Unsolvability 3 hrs.
Turing machines; Markov algorithms; recursive functions. Equivalence between various formalizations. Church-Turing thesis. Algorithmically unsolvable problems. Prerequisite: MATH 506.

682 Introduction to Artificial Intelligence 3 hrs.
Game-playing programs; theorem-proving programs; general problem-solving programs; pattern-recognizing programs; question-answering programs. Prerequisite: MATH 506.

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 Mahler and Blichfeldt, 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 totient 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.
688 Analytic Number Theory 3 hrs.

Elementary methods in the analytic theory of numbers: the theory of distribution of the primes, the Prime Number Theorem, Dirichlet's Theorem on primes in an arithmetic progression. Transcendental methods: the Riemann Zeta-function and its arithmetical applications; Tauberian methods in the theory of prime numbers: Dirichlet series. Prerequisite: MATH 571, or permission of instructor.

689 Studies in Number Theory 3 hrs.

Advanced work organized around topics related to the field of study indicated in the title. Students may take this course more than once.

690 Seminar in Applied Mathematics 1-3 hrs.
692 Seminar in Topology 1-3 hrs.
693 Seminar in Algebra 1-3 hrs.
694 Seminar in Graph Theory 1-3 hrs.
695 Seminar in Mathematics Education 1-3 hrs.
696 Seminar in Probability and Statistics 1-3 hrs.
697 Seminar in Analysis 1-3 hrs.
699 Reading and Research 1-6 hrs.

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

712 Professional Field Experience 2-12 hrs
720 Specialist Project 2-6 hrs.
730 Doctoral Dissertation 15 hrs.
735 Graduate Research 2-10 hrs.

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

610 Concepts of Mathematics 4 hrs.

This course will include the following topics: sets, relations, functions, equivalence and other relations, axiomatics, logical structure of elementary algebra, mathematical induction, integers, rational and real numbers, cardinals. Prerequisite: Consent of adviser.

611 Mathematical Application 4 hrs.

An introduction to the philosophy of, machinery for, and methodology in applications of mathematics. Includes topics in discrete probability, statistical significance tests with application to multiple choice examinations, numerical approximation, optimization and graphical linear programming, linear differential equations with applications to growth and decay. Prerequisite: Consent of the adviser.

614 Mathematical Logic 4 hrs.

This course will include the following topics: sentential connectives, theory of
influence, symbolizing language, quantifiers, formal and informal proofs. Prerequisite: Consent of the adviser.

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

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

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

650 Mathematics for Elementary School Teachers 2 hrs.
Emphasizes the concepts and foundations of the mathematics commonly taught in elementary school, and of associated problems of learning and teaching. Each student will be expected to study and report on some special problem of 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.

Medieval Studies  
John R. Sommerfeldt, 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.
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), Ernest A. Breisach (History)*, Bernadine P. Carlson (English), Norman E. Carlson (English), Seamus Cooney (English). Nancy Cutbirth (English)*, Audrey Davidson (General Studies)*, Clifford Davidson (English)*, Robert S. Davis (English), Ronald W. Davis (History), Elizabeth H. Dull (Art), Benjamin Ebling (French), David Ede (Religion)*, E. Rozanne Elder (History)*, Robert W. Felkel (Spanish)*, Stephanie Demetrakopoulos (English)*, Daniel Fleischhacker (Communications), Jeffrey B. Gardiner (German), C. J. Gianakaris (English)*, Elizabeth Giedeman (Latin)*, Otto Grundler (Religion)*, Paule Hammack (French), Robert P. Johnson (Art), Johannes A. Kiessel (German)*, Charles E. Meyer (Art), Donald Milton (Philosophy), Genevieve Orr (French), George F. Osmun (Classics), Robert A. Palmatier (Linguistics)*, William A. Ritchie (Political Science), Thomas Seiler (English)*, Charles A. Smith, (English), Kathleen 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 I. Clark (Honors College), Roger L. Cole (German), William W. Combs (English), George H. Demetrakopoulos (Medieval Institute)*, Ollin J. Drennan (General Studies), D.P.S. Dwarkesh (Linguistics), Robert R. Fink (Music), Jack J. Frey (Music), Peter Greenquist (Instructional Communications), Robert J. Griffin (Spanish), Maryellen Hains (English), Louis Kiraldi (Library), Peter W. Krawutschke (German)*, Paul L. Maier (History), Edwin E. Meader (Geography), Ralph N. Miller (English), Paul T. Mountjoy (Psychology), Emanuel Nodel (History), Maisie K. Pearson (English), Judith Singleton Pruitt (Cistercian Studies), David A. Sheldon (Music), Rudolf J. Siebert (Religion), Thomas E. Small (English), John Stott (English).

COURSE OFFERINGS

**Art**

520 Independent Study in Art History 2-3 hrs.
583 History of Medieval Art 3 hrs.
585 History of Renaissance Art 3 hrs.
620 Independent Study in Art History 2-3 hrs.
700 Master's Thesis 6 hrs.
710 Independent Research 2-6 hrs.

**Communication Arts and Sciences**

526 History of Theatre: From the Beginnings to the English Renaissance 3 hrs.
598 Independent Studies in Speech 1-4 hrs.
710 Independent Research 2-6 hrs.

**Economics**

598 Readings in Economics 1-3 hrs.
710 Independent Research 2-6 hrs.

**English**

529 Medieval English Literature 4 hrs.
530 Medieval Continental Literature in English Translation 4 hrs.
531 Chaucer 4 hrs.
532 Sixteenth Century Literature 4 hrs.
543 Elizabethan and Jacobean Drama 4 hrs.
554 Milton 4 hrs.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>598</td>
<td>Readings in English</td>
<td>2-4 hrs</td>
</tr>
<tr>
<td>642</td>
<td>Studies in Drama</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>653</td>
<td>Studies in Shakespeare: Comedy</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>660</td>
<td>Methods of Research in English</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>661</td>
<td>Seminar in English</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>676</td>
<td>Early English</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>700</td>
<td>Master's Thesis</td>
<td>6 hrs.</td>
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<tr>
<td>710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
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<tr>
<td>History</td>
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<tr>
<td>534</td>
<td>Medieval France</td>
<td>3 hrs.</td>
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<tr>
<td>535</td>
<td>Medieval England</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>552</td>
<td>The Medieval Church</td>
<td>3 hrs.</td>
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<tr>
<td>553</td>
<td>Life in the Middle Ages</td>
<td>3 hrs.</td>
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<tr>
<td>554</td>
<td>The Renaissance</td>
<td>3 hrs.</td>
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<tr>
<td>555</td>
<td>The Reformation</td>
<td>3 hrs.</td>
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<tr>
<td>587</td>
<td>Ancient and Medieval Africa</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>592</td>
<td>Historical Literature</td>
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<tr>
<td>598</td>
<td>Independent Readings in History</td>
<td>2-3 hrs.</td>
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<tr>
<td>618</td>
<td>Seminar in European History</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>652</td>
<td>Studies in Medieval History</td>
<td>3 hrs.</td>
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<tr>
<td>646</td>
<td>Seminar in Medieval History</td>
<td>3 hrs.</td>
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<tr>
<td>690</td>
<td>Historical Method</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>692</td>
<td>Studies in Historical Literature</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>699</td>
<td>Historical Essay</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>700</td>
<td>Master's Thesis</td>
<td>6 hrs.</td>
</tr>
<tr>
<td>710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
</tr>
<tr>
<td>Languages, Modern and Classical</td>
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<tr>
<td>German</td>
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<tr>
<td>528</td>
<td>Survey of German Literature</td>
<td>3 hrs.</td>
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<tr>
<td>550</td>
<td>Independent Study in German</td>
<td>1-3 hrs.</td>
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<tr>
<td>559</td>
<td>History of the German Language</td>
<td>3 hrs.</td>
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<tr>
<td>620</td>
<td>Seminar</td>
<td>2-4 hrs.</td>
</tr>
<tr>
<td>640</td>
<td>Introduction to Middle High German</td>
<td>3 hrs.</td>
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<tr>
<td>700</td>
<td>Master's Thesis</td>
<td>6 hrs.</td>
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<tr>
<td>710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
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<tr>
<td>Latin</td>
<td></td>
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<tr>
<td>550</td>
<td>Independent Study in Latin</td>
<td>1-3 hrs.</td>
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<tr>
<td>700</td>
<td>Master's Thesis</td>
<td>6 hrs.</td>
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<tr>
<td>710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
</tr>
<tr>
<td>Russian</td>
<td></td>
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<tr>
<td>550</td>
<td>Independent Study in Russian</td>
<td>1-3 hrs.</td>
</tr>
<tr>
<td>710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
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### Spanish

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>526</td>
<td>Survey of Spanish Literature (to 18th Century)</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>550</td>
<td>Independent Study in Spanish</td>
<td>1-3 hrs.</td>
</tr>
<tr>
<td>606</td>
<td>Medieval Spanish Literature</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>620</td>
<td>Seminar</td>
<td>2-4 hrs.</td>
</tr>
<tr>
<td>700</td>
<td>Master's Thesis</td>
<td>6 hrs.</td>
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<tr>
<td>710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
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### Librarianship

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>602</td>
<td>History of Books and Printing</td>
<td>3 hrs.</td>
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### Linguistics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>598</td>
<td>Readings in Linguistics</td>
<td>1-4 hrs.</td>
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### Music

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>517</td>
<td>Collegium Musicum</td>
<td>1 hr.</td>
</tr>
<tr>
<td>598</td>
<td>Readings in Music</td>
<td>1-4 hrs.</td>
</tr>
<tr>
<td>670</td>
<td>Seminar in Musicology</td>
<td>1 hr.</td>
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<tr>
<td>671</td>
<td>Seminar in Musicology</td>
<td>1 hr.</td>
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<tr>
<td>672</td>
<td>Medieval Music</td>
<td>3 hrs.</td>
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<tr>
<td>673</td>
<td>Renaissance Music</td>
<td>3 hrs.</td>
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<tr>
<td>700</td>
<td>Master's Thesis</td>
<td>6 hrs.</td>
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<tr>
<td>710</td>
<td>Independent Research</td>
<td>2-6 hrs.</td>
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### Philosophy

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<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>598</td>
<td>Readings in Philosophy</td>
<td>1-4 hrs.</td>
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### Political Science

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>598</td>
<td>Studies in Political Science</td>
<td>1-4 hrs.</td>
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</table>

### Religion

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>500</td>
<td>Historical Studies in Religion: Christian Theology to 1500</td>
<td>2-4 hrs.</td>
</tr>
<tr>
<td>598</td>
<td>Readings in Religion</td>
<td>1-4 hrs.</td>
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</table>

### Science

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>598</td>
<td>Readings in Science</td>
<td>1-4 hrs.</td>
</tr>
</tbody>
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**Philosophy (PHIL)**

Ellin, Chairman; Associate Professors Falk, Pritchard, 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 chairman, 3100 Friedmann Hall.

**Open to Upperclassmen and Graduate Students**

**598 Readings in Philosophy**

Research on some selected period or topic under supervision of a member of the Philosophy faculty. Approval of instructor involved and chairman of the department's individualized courses must be secured in advance of registration.
Physics (PHYS)

Oppilger, Chairman; Professors Bernstein, Bradley, Derby, Hardie, Kruglak, Nichols, Shamu, Soga, Zietlow; Associate Professors Carley, Dotson, Herman, Kaul, Kusmiss; Assistant Professor Todd

Open to Upperclassmen and Graduate Students

520 Analytical Mechanics 3 hrs.
The topics studied include the dynamics of a single particle and the motion of a system of interacting particles. Techniques of vector analysis are used frequently and conservation laws are developed and applied. The Lagrangian formulation of mechanics is introduced. Prerequisites: PHYS 211, MATH 223. The latter may be taken concurrently.

540 Electricity and Magnetism I 3 hrs.
This is a theoretical course providing a thorough investigation of electric and magnetic fields. The applications of the theorems of Stokes and Gauss are emphasized and Maxwell's Equations are developed. Prerequisites: PHYS 212 or consent of instructor, and MATH 223.

541 Electricity and Magnetism II 3 hrs.
This course is a continuation of 540 and is an elective for majors wishing advanced work in field theory. Maxwell's Equations and their applications to topics such as time-dependent fields, wave guides, and radiation will form the principal topics of the course. Prerequisite: PHYS 540.

552 Applied Spectroscopy 3 hrs.
This is a combined class and laboratory course on methods of emission spectrographic analysis. The topics studied include the history of spectroscopy, the origin of line spectra, spectrographic instruments, and modern techniques of qualitative and quantitative analysis. Prerequisites: PHYS 111 or 211, or consent of instructor.

560 Modern Physics I 3 hrs.
This course includes an introduction to quantum mechanics with selected applications, including one-dimensional potentials, the harmonic oscillator, one-electron atom, the helium atom, atomic shell structure, and atomic spectroscopy. A knowledge of elementary differential equations is assumed. Recommended for seniors. Prerequisites: PHYS 212 and 520, or consent of instructor.

561 Modern Physics II 3 hrs.
Here the quantum theory covered in Physics 560 is applied to several areas of atomic and nuclear physics. Topics covered include x-rays, collision theory, general properties of nuclei, the nuclear two-body problem, nuclear reactions, and nuclear models. Prerequisite: PHYS 560. This course and 563 are offered in alternate years.

563 Introduction to Solid State Physics 3 hrs.
This course is designed to acquaint the student with the basic techniques for describing the structure and properties of solids. After an initial study of symmetry and crystal structure the following topics are treated: the cohesion of solids; x-ray and neutron diffractions; the elasticity of solids; lattice vibrations; the thermal and electrical properties of solids, with particular emphasis on metals. Prerequisites: PHYS 560 or consent of instructor. This course and 561 are offered in alternate years.
566 Advanced Laboratory 2-3 hrs.

The objectives of this course are to provide the student with experiences in the use of modern laboratory equipment and with a better understanding of several important physical phenomena. The student will select experiments from a list covering three areas: atomic, solid-state, and nuclear physics. A portion of the semester may be devoted to studying a problem in depth. The course consists of two or three three-hour laboratory periods each week. The course may be repeated for credit. Prerequisites: PHYS 342 and either 560 or 360 (560 or 360 may be elected concurrently with 566).

598 Selected Topics 1-4 hrs.

This course affords an opportunity for advanced students with good scholastic records in Physics to pursue independently the study of some subject of interest to them. Prerequisite: Consent of instructor.

Open to Graduate Students Only

622 Quantum Mechanics I 3 hrs.

This course is designed to provide a foundation of fundamental techniques of calculation for more advanced work in the physics and chemistry of atoms, molecules, nuclei and solids. An attempt will be made to provide an understanding of the principles of the subject through the Schroedinger-Heisenberg equations as well as through the formal operator theory of Dirac. The simple and representative systems of the simple harmonic oscillator and the one electron atom will be discussed. The course will be confined almost solely to the non-relativistic approximation. This course and 662 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

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

In this course the following topics are treated: superconductivity, the dielectric properties of solids, ferroelectricity diamagnetism and paramagnetism, ferromagnetism and antiferromagnetism, magnetic resonance, optical phenomena in insulators, and point defects and dislocations in solids. Prerequisite: PHYS 563.

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

700 Master's Thesis

710 Independent Research

Political Science (PSCI)

Olton, Chairman; Professors Clark, Kaufman, Kim, Klein, Mitchell, Phillips, Plano, Stine, Ziring; Associate Professors Dahlberg, Isaak, Lewis, McAnaw, Ritchie, Rossi; Assistant Professors Druker, Gorgone, Hanson, Kobrak, Renstrom, Rogers, Thompson

1. AMERICAN POLITICAL SYSTEM

Open to Upperclassmen and Graduate Students

504 Making of Public Policy in the U.S. 3 hrs.

A study of the formation of public policy at the local, state, and national levels with emphasis on the impact of decision processes upon policy outcomes.

506 Problems of American Government 3-4 hrs.

A critical examination of major problems facing national, state, or local government with emphasis upon contemporary efforts and studies designed to understand or solve such problems. Topics will vary from semester to semester and students may repeat the course.

520 Constitutional Law 3 hrs.

Study of leading American constitutional principles as they have evolved through major decisions of the U.S. Supreme Court. Emphasis on judicial review, federalism, separation of powers, commerce and taxation.

522 Civil Liberties and Civil Rights 3 hrs.

An examination of Supreme Court responses to First Amendment, criminal procedure, and equal protection questions with particular emphasis on political, social and policy-making aspects.

526 Administrative Law and Public Regulation 3 hrs.

A study of the requirements for, and the limits on, the exercise of administrative powers by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to the extent of
governmental regulation and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determination. Prerequisites: PSCI 200 or a course in Economics.

530 Problems in Public Administration 2-4 hrs.
Consideration of issues and problems of current interest in the field of public administration. The course is intended to provide advanced work for undergraduates and to serve as an introduction to the field for graduate students without previous training in public administration.

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.
An 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.

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.

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  3 hrs.
Study and research of selected major topics in public administration. Independent reports will be made. Subject matter will vary and the course may be repeated.

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.

635 Internship Seminar in Public Administration  3 hrs.
This seminar will be run in conjunction with the PSCI 712 Professional Field Experience course. The seminar will center on topics of particular interest to the various internship participants. The preparation of a formal seminar paper is an integral part of the requirements for this seminar. The seminar will be the final class requirement for students seeking the Master of Public Administration degree, and they will be expected to summarize their experiences in the program.

II. FOREIGN AND COMPARATIVE POLITICAL SYSTEMS

Open to Upperclassmen and Graduate Students

540 Western Democratic Systems  3 hrs.
A comparative study of the established democracies of North America, Western Europe, and older Commonwealth states. Examines the conflict in western democracies between traditional ideology, structures, procedures and contemporary conditions. Analyzes comparatively and theoretically the constitutional and political party systems, political culture and behavior.

542 Administration in Developing Countries  3 hrs.
A consideration of the relation of administrative structure and technique to the political, economic and social problems of the developing countries. Special attention to the role of the bureaucracy in the political system and the nature of, and obstacles to, administrative modernization.

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 topically on a cross-national basis. The topic to be studied will be announced each semester. Each student will conduct independent research.

III. INTERNATIONAL RELATIONS

Open to Upperclassmen and Graduate Students

552 Studies in International Relations
3-4 hrs.
Examines selected topics within the field of international relations. Topics will vary and will be announced each semester. Course may be repeated.

553 United Nations
3 hrs.
A study of the United Nations in action. Attention is focused on significant political problems confronting world organization, i.e., functional and dysfunctional
aspects of the UN Chapter; nationalism vs. internationalism within the UN; conflict resolution and UN peace-keeping efforts; specific UN accomplishments in maintaining a dynamic-international equilibrium; UN weaknesses and the future of world organization.

555 International Law 3 hrs.

The theory, sources, development, and general principles of international law, and the relationship of law to the dynamics of international politics. Decisions of international and municipal tribunals and the practices of states will be used to demonstrate the basic rights and obligations of states in time of peace and war. Such topics as recognition of states, diplomatic practice, treaties and neutrality will also be discussed.

556 Comparative Foreign Policy 3 hrs.

Analysis of foreign policy theories and practices in selected nations. Particular emphasis is given to the interactive process of conflict and competition, cooperation and compromise in the pursuit of national interests.

557 Studies in American Foreign Policy 3-4 hrs.

The course treats American Foreign Policy as a process and emphasizes both policy formation and policy execution through the vehicle of specific case problems, such as: the nature and role of foreign policy. Congress and foreign policy, the role of the military, the United Nations and American foreign policy, and changing American attitudes on the objectives of foreign policy.

Open to Graduate Students Only

650 Seminar: International Relations 3 hrs.

Study and research on a common topic of current international political, organizational, or legal significance. Individual papers and reports will be presented.

651 Seminar: Foreign Policy 3 hrs.

Study and research on a common topic of American or comparative foreign policy significance. Individual papers and reports will be presented.

652 Seminar: Case Studies in Decision Making 3 hrs.

An analysis of specific international disputes. The course will consider how statesmen and diplomats negotiate, why certain instruments are employed in one situation and not another, and what factors are vital in given cases. Efforts will be made to understand the consequences of decisions and their continuing effect on related policy-problems.

IV. POLITICAL THEORY AND METHODOLOGY

Open to Upperclassmen and Graduate Students

560 Comparative Political Ideology 4 hrs.

A consideration of the concept of ideology and significant classical and contemporary ideologies, including their nature, causes and functions in various political systems.

562 Modern Democratic Theory 3 hrs.

The course consists of two parts. First, a consideration of traditional democratic theories, and the criticism of these theories emanating from modern elitists such
as Mosca, Michels, Pareto and Ostrogorski. Second, an analysis of the attempts of contemporary economists, political scientists, and sociologists to meet these criticisms by revising democratic theory.

563 Theories of Revolution

4 hrs.

Examines significant classical and contemporary theories of revolution with reference to both their analytical and normative implications.

564 Political Inquiry and Analysis

4 hrs.

Analysis of the application of scientific methods to the study of political phenomena; problems of concept formation; law; cause and explanation; theory construction; the place of values in political inquiry.

590 Research Methods

3 hrs.

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

591 Statistics for Political Scientists

3 hrs.

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

Open to Graduate Students Only

660 Seminar: Political Thought

4 hrs.

An analysis of problems and subject matter considered by political philosophers and significant to the social sciences. Various issues arising in political thought, certain periods in history, or regions of the world may be considered. Subject considered will vary and the course may be repeated.

V. SPECIAL STUDIES

598 Studies in Political Science

1-4 hrs.

An opportunity for advanced students with good scholastic records to pursue independently the study of some subject of interest to them. Subjects are chosen and arrangements made to suit the needs of individual students. Prerequisite: Approval of Department Chairman or instructor.

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

700 Master's Thesis

6 hrs.

710 Independent Research

2-6 hrs.

712 Professional Field Experience

2-12 hrs.

Psychology (PSY)

Gault, Chairman; Research Professor Ulrich; Professors Asher, Fatzinger, N. Kent, Koronakos, Lyon, Michael, Mountjoy, Robertson, Schmidt; Associate Professors
Farris, Hawkins, Malott, Nangle, Snapper; Assistant Professors Alessi, Hitzing, Huitema, L. Kent, Peine, Sidney

Open to Upperclassmen and Graduate Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>505</td>
<td>Teaching Psychology in the Secondary School</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>Class discussions, laboratory experiences and field work concerned with the teaching of Psychology in high school. This is a required methods course for students who plan to teach Psychology in the secondary school. Prerequisite: PSY 360.</td>
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<tr>
<td>510</td>
<td>Advanced General Psychology</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>513</td>
<td>Animal Behavior I</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>Research in various areas of animal behavior. An individual research project is required with emphasis on laboratory research of animal learning processes. Research design, data collection, analysis and reporting are included.</td>
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<tr>
<td>514</td>
<td>Animal Behavior II</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>Advanced research in animal behavior. This course is for continuation of research initiated in Animal Behavior I and for advanced students with research of laboratory experience.</td>
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<tr>
<td>516</td>
<td>Conditioning and Learning</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>517</td>
<td>Psychology of Learning for Teachers</td>
<td>3 hrs.</td>
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<td></td>
<td>Designed to teach the principles of behavior and the application of these principles to teaching. Topic areas covered include the use of behavior principles in the construction of objectives, selection and preparation of instructional material, performance contracting, behavior problems, incentive learning and program evaluation. Practical application is stressed.</td>
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<tr>
<td>518</td>
<td>Sensory and Perceptual Processes</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>A survey of sensory and perceptual phenomena with an emphasis on vision and audition. Lecture and laboratory. Prerequisite: Permission of the instructor.</td>
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<tr>
<td>530</td>
<td>Statistics for Education</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>An introduction to basic statistical procedures and concepts. Primarily for students in education. Not open to Psychology majors.</td>
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<tr>
<td>535</td>
<td>Instrumentation in Psychology</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>A survey of problems in response measurement in experimentation lecture and laboratory.</td>
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<tr>
<td>540</td>
<td>Industrial Psychology</td>
<td>3 hrs.</td>
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|             | Application of psychological principles to industry. An examination of employee
selection, occupational analysis and classification, training, evaluation or performance, supervision, and working conditions. Prerequisites: PSY 150 and 381.

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

574 Experimental Social Psychology 3 hrs.
Methodology of research with groups, with emphasis upon design and application. Prerequisite: Permission of the instructor.

580 Testing and Measurement in Education 3 hrs.
Educational applications of testing and measurement procedures.

595 History of Psychology 3 hrs.
The historical and philosophical foundations of contemporary American psychology.

597 Topical Seminar 1-5 hrs.
A survey in depth and discussion of a research topic of current interest. Prerequisite: Permission of instructor. May be repeated for credit.

598 Special Projects in Psychology 1-5 hrs.
Open to Graduate Students Only

612 Advanced Physiological Psychology 3 hrs.
A survey of the interrelationships of physiological and behavioral processes. Lecture and laboratory. Prerequisite: Permission of the instructor.

613 Comparative Psychology 3 hrs.
Phylogenetic and ontogenetic comparisons of behavior with relation to structure and function. Lecture and laboratory.

614 Motivation and Emotion 3 hrs.
An introduction to the experimental analysis of psychological and physiological aspects of motives, incentives, and emotions. Prerequisite: Permission of the 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 infrahuman organisms. Lecture and laboratory.

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

622 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 disaffirm these social and behavioral theories. This course is cross-listed with Sociology.
623 Advanced Abnormal Psychology 3 hrs.
Comprehensive study of pathological behavior patterns with consideration of experimental studies and theoretical approaches to causes and empirical treatment techniques.

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: A course in inferential statistics.

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.

643 (581) Personnel Selection and Placement 3 hrs.
A critical study of assessment techniques such as testing, weighted application blanks, and interviewing. Included is consideration of administrative procedures and the methods of measuring the functional adequacy of assessment methods.

644 Personnel Training and Development 3 hrs.
The course emphasizes the principles of learning as well as techniques and administrative procedures used in the development of manpower at all levels.

645 Psychology of Work 3 hrs.
Emphasis is placed upon an investigation of worker attitudes, morale, motivation, supervisory styles, and social interaction as determiners of employees productivity and job satisfaction.

660 Introduction to Clinical and Community Psychology 3 hrs.
A survey of the fields of Clinical and Community Psychology with emphasis upon the new roles of Clinical Psychologists and Community Psychologists.

661 Behavior Change 3 hrs.
An examination of the theories and techniques of behavior change applied on an individual basis.

662 Behavior Change 3 hrs.
An examination of the theories and techniques of behavior change applied on a group basis.

663 Practicum in Behavior Change 3 hrs.
Supervised experience in one or more methods of behavior change. May be repeated for credit up to a maximum of six hours.

664 Seminar in Substance Abuse 1 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, Social Work, and Sociology.

665 Seminar in Substance Abuse II
Continuation of PSY 664. This course is cross-listed with Biology, Counseling-Personnel, Social Work, and Sociology.

680 Psychometric Theory
An advanced course for research oriented behavioral science students. The main emphasis will be on the principles underlying development and use of all psychological measurement methods. Prerequisite: Permission of the instructor.

681 Personality Measures (Non-projective)
Studies of the principles of objective personality measurement, such as the MMPI; the findings of studies using these procedures and their applications. Prerequisites: Graduate standing in Industrial, Clinical, School Psychology or Counseling, or permission of instructor.

682 Individual Testing
Theory and basic concepts underlying the use of individual tests of intelligence. Experience under supervision in administration, scoring and interpretation of the Wechsler Adult Intelligence Scale (WAIS) and the Wechsler Intelligence Scale for Children (WISC) and other diagnostic instruments used in the prescriptive diagnosis of learning disabilities and other handicaps. Concurrent enrollment in 697 Wechsler lab is recommended.

683 Individual Testing
Theory and basic concepts underlying the use of individual tests of intelligence. Experience under supervision in administration, scoring and interpretation of the Stanford-Binet Intelligence Scale, Form L-M, and other diagnostic instruments used in the prescriptive diagnosis of learning disabilities and other handicaps. Prerequisite: Graduate standing in Clinical or School Psychology, or permission of the instructor. Concurrent enrollment in 697 Binet lab is recommended.

684 Projective Techniques
Survey of the theory of projective psychology and the basic concepts of projective measurement. Emphasis is placed on the administration, scoring and interpretation of the Rorschach. The Revised Bender-Gestalt, Porteus Maze, TAT, and figure drawing tests are also considered. Supervised practice. Clinical and School Psychology or permission of instructor.

685 Advanced Projectives
An intensified study of and supervised practice in Rorschach, Revised Bender-Gestalt, Porteus Maze, figure drawing, and other projective tests. Emphasis on selection and interpretation of projective test battery. PSY 684 or permission of instructor. Clinical and School Psychological Examiner only.

696 Systematic Psychology
An intensive study of current theories in psychology with emphasis on the philosophy of science and the logic of system building.
697 Advanced Seminar 1-5 hrs.

This course will be an examination in depth of a research or professional topic of current interest. Topics include the following:

a. Advanced data analysis
b. Advanced experimental design
c. Applied behavior analysis: Systems approach I
d. Applied behavior analysis: Systems approach II
e. Applied multivariate analysis
f. Parent training and family intervention
g. Professional training seminar in clinical psychology
h. Sexual behavior
i. Wechsler lab

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

700 Master's Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.
720 Specialist Project 2-6 hrs.

Religion (REL)

N. Falk, Chairman; Professors Grundler, Lawson, Loew, Siebert; Associate Professors Bischoff, Earhart, Kaufman; Assistant Professor Ede

Open to Upperclassmen and Graduate Students

500 Historical Studies in Religion 2-4 hrs.

The topic to be announced in the 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 have been studies in recent years: Zen Buddhism; Buddhism in India; Hinduism; Yoga; Japanese New Religions and Revitalization; Islam in the Modern World; Islamic Thought; Christian Theology to 1500; Christian Theology Since 1500.

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 have been studied in recent years: Christian Myth and Ritual; Mysticism; Milleium; Utopia and Revolution; Religion and the Occult.

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 have been studied in recent years: Rationality in Religion; Marxist Philosophy of Religion; Religion, the Evolution of the Sciences and the Dynamic of Society.
521 The Teaching of Religion in the Public School 2 hrs.

This course focuses on methods and issues involved in the teaching of religion in the public school. Particular attention is given to the problems of its constitutionality, the distinction between the academic study of religion and religious instruction, and the question of meaning. Various approaches to the teaching of religion are critically evaluated. Teaching methods appropriate to the level of instruction, availability, organization, selection and use of materials will be discussed. Required of all students following an Elementary or Secondary Education Curriculum which includes the academic study of religions as a minor.

530 Constructive Studies in Religion 2-4 hrs.

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 have been studied in recent years: Political Theology; Theology of Hope; Religion in Contemporary Culture; Hegelian and Neo-Marxist Theory 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 Chairman of the Department must be secured in advance of registration.

Science Division (SCI)

Professors Derby, Hannon, Hardie, Holkeboer, Kruglak, G. Mallinson, VanderBeek; Associate Professors Engemann, Kanamueller, J. Mallinson, Passero, Pippen, Straw; Assistant Professor Poel

Open to Upperclassmen and Graduate Students

510 Studies in Space Science 3 hrs.

The properties, structure, and evolution of stars will be emphasized in this course. Topics covered will also include: tools and methods of investigation, galaxies, cosmogony, and cosmological theories. Prerequisites: PHYS 106, or 110 and 111 or equivalent: PHYS 104 or equivalent.

598 Readings in Science 1-4 hrs.

To be used by students seeking work in topics not otherwise available. The student is limited to not more than four hours in all reading courses and work must be completed under a graduate professor.

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

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

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

Designed to provide an integrating experience for students studying in the Science Education doctoral program. The subject of the seminar will vary from one semester to the next. May be repeated for credit.

NSF Courses — Open to Institute Participants Only

538 Oceanography (NSF)

Physical oceanography and submarine geology. A study of the physical properties of sea water, boundary processes, ocean currents, water masses and circulation in the ocean. Consideration will be given to sedimentary processes, marine sediments and their history, continental shelves, the development of coral reefs, and topography of the ocean floor.

630 Studies in Physical Science (NSF)

Designed for In-Service Programs for Teachers of Science at the elementary level or junior-high-school level. Contents selected mainly for concepts of physics and chemistry needed to teach science more adequately at these levels.

640 Studies in Chemistry I (NSF)

The study of basic principles of Chemistry including atomic structure, chemical reactions and their quantitative relations, determination of atomic and molecular weights, solutions and their properties, electrolytes, Chemical equilibrium, covalent and ionic bonds, and the use of conversion factors.

641 Studies in Chemistry II (NSF)

A continuation of Science 640 with further study of basic principles of organic chemistry.

650 Studies in Mathematics I (NSF)

A study of the algebraic, geometric, and trigonometric concepts needed for the understanding of the physical and chemical concepts presented in junior-high-school science. Topics will include basic principles of arithmetic, functions, systems of equations, inequalities, introductory set theory, and graphical analysis.

660 Studies in Atmospheric Physics (NSF)

An introductory study to meteorology including chemical and physical properties of the atmosphere, effect of solar radiation of the atmosphere, jet streams, and their relationships to weather and climatic phenomena.

661 Studies in Physics I (NSF)

Study of basic principles of physics involving the solar system, graphing and
interpreting relations, force and motion, mechanical and heat energy, power, electromagnetic energy, light and spectra, subatomic physics, radioactivity and nuclear energy.

662 Studies in Physics II (NSF) 2 hrs.
A continuation of Science 661.

663 Studies in Physics III (NSF) 2 hrs.
A continuation of Science 662.

670 Studies in Geology I (NSF) 2 hrs.
Emphasis on mineralogy and petrology. The geochemical cycle will form the basis for relating igneous, sedimentary, and metamorphic rocks. Study of physical and chemical properties of minerals will prepare the student for the study of rocks as mineral assemblages which reflect the physiochemical conditions for formation. A brief introduction to optical mineralogy will prepare the student for viewing mineral relationship in thin sections of rocks. Rocks will be studied both in hand specimen and thin section, and problems involving specimens and maps will be undertaken.

671 Studies in Geology II (NSF) 2 hrs.
A continuation of Science 670 with emphasis on paleontology and stratigraphy with the evolution of life illustrated by fossil records. Paleocology will be emphasized as well as the relationship of fossils to stratigraphic sequences. Geologic maps and fossils will be used in problem situations.

681 Recent Developments in Biological Science (NSF) 2 hrs.
Students will be expected to survey extensively current literature in Biology at the popular and semi-technical levels, and to carry on an extensive investigation on the specific topic. Prerequisite: Eight hours of college biology or consent of instructor.

682 Studies in Biology I (NSF) 2 hrs.
A first level course involving advanced study of basic principles of Biology such as change of living through time, diversity of type and unity of pattern of living things, genetic continuity of life, complementarity of organism and environment, and biological basis of behavior.

683 Studies in Biology II (NSF) 2 hrs.
A continuation of Science 682, involving advanced study of basic principles of Biology such as complementarity of structure and function, regulation and homeostasis (the maintenance of life in the face of change), with emphasis on the intellectual history of biological concepts and the nature of science is inquiry.

Social Science Division (SSCI)

Open to Upperclassmen and Graduate Students

500 Data Processing for Behavioral Scientists 3 hrs.
An introduction to data processing for students of the behavioral sciences. Emphasis to be placed upon computer programming in one general purpose com-
puter language and individual projects involving a behavioral problem selected by each student. In addition, there will be a survey of a number of computer techniques which show promise for research in the behavioral sciences. Indeed solely for persons in the behavioral science. No special mathematical background required. Prerequisite: Consent of instructor.

504 Social Studies Seminar 6 hrs.

See Arts and Sciences for information on seminars to England, Yugoslavia, and East Africa.

506 Studies in the Non-Western World 2-3 hrs.

The conduct and content of this seminar, open to both undergraduate and graduate students, varies from semester to semester but is invariably designed to explore some facet of the problems and prospects facing Third World regions or countries.

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 in the public schools.

605 Seminar in Area Studies 3 hrs.

This seminar is designed to provide opportunities for Area Studies students to synthesize various social science theories related to national and international development.

606 Colloquium in International and Area Studies 3 hrs.

Papers and reports on topics such as population, urbanization, economic affairs, cultural change, political processes, historical evolution, technology, ideologies and others related to developing area. Students are expected to share their finds with the members of the Colloquium and to acquire a general view of the topics covered.

NSF Courses — Open to Institute Participants Only

630 Studies in Social Sciences (NSF) 4 hrs.

Designed for in-service programs for teachers of Social Science at the elementary or junior-senior high level. Content selected mainly from concepts of specified social sciences needed to teach at the K-12 level.

Social Work (SWRK)

Professors Boettcher, Burian, Burns, Caplinger, Flynn, Kramer; Associate Professors Barstow, Braithwaite, Dadlani, Riehman, Webb; Assistant Professors Adams, Avery, Bryant, Kazmerski, Kettner, Long, McCaslin, Phillips, Reid, Thompson

Beginning with the Fall Semester 1973, all Social Work courses are graded on a Credit-No Credit basis for students in the MSW program. All other students should register for regular credit.
SOCIAL POLICY

Open to Upperclassmen and Graduate Students

572 Community Agency Resources 2 hrs.
A study of community agencies and resources for those concerned with family and personal problems. Emphasis is placed upon the availability of these resources and their effective use by business and industry, speech therapists, guidance counselors, teachers, etc. Prerequisite: Consent of instructor.

Open to Graduate Students Only

Examination of historical and contemporary inter-relationships among individual needs, social system requirements and conditions, institutionalized social welfare forms and social work actions. Examples of selected social problems are used to illustrate the development of social policy in this country as a changing set of responses for dealing with individual distress and social strains, and to evaluate the effectiveness of current social welfare policies and programs. Emphasis is placed upon the key role of social policy in shaping the field of action in social welfare for social work and related professions. Prerequisite: Consent of instructor.

611 Social Policy Analysis and Formulation 2 hrs.
Development of approaches for analyzing, formulating and changing social policies relative to selected issues and problems. National, state and local dimensions of social policy are considered, along with the problems in adaptation of national policy requirements to state and local conditions and of state development policies to local communities. Prerequisite: SWRK 610 or consent of instructor.

612 Social Policy and Service Delivery in Selected Problem Areas 3 hrs.
Intensive study of problem solving frameworks for the solution and management of selected social problems. Attention is focused on the roles of policy analysis and formulation, and service delivery in the problem solving process. Specific topic will be announced each semester. May be repeated for credit. Prerequisite: Consent of instructor.

613 Social Welfare and the Law 2 hrs.
The legal bases of organized social welfare and social work practice are examined through the study of selected examples of social legislation and judicial decisions, the legislative process, development of administrative regulations and court organization. Illustrative case studies are used to demonstrate how social workers can manage within the restrictions and opportunities presented by legal institutions and practices in social and individual case situations. Prerequisite: SWRK 610 and 611, or consent of instructor.

A comparative analysis of selected characteristics of a group of western and non-western social welfare systems and the differential cultural values and social conditions from which they are derived. Social work practice in the U.S. is contrasted with counterpart activities in other countries. Prerequisite: SWRK 610 and 611, or consent of instructor.

SOCIAL AND BEHAVIORAL THEORY

Open to Upperclassmen and Graduate Students
533 Dynamics of Race and Culture for Social Work Practice 3 hrs.

Racial and group cultural characteristics of social welfare consumer groups and social work clientele are examined. Included in this analysis is an extensive survey of social science and administrative research materials. Implications are drawn for the planning, organizing, administration and provision of programs and services. Particular emphasis is placed on racial and cultural conflict. Prerequisite: Consent of instructor.

Open to Graduate Students Only

630 Social Change Theory and Community Analysis 2 hrs.

The community as a field of action for social change and decision making is analyzed. Several conceptions of social change and stability are reviewed. The processes of community decision making are examined. A social systems framework is used as the conceptual base for analysis in both areas. Prerequisite: Consent of instructor.

631 Family and Individual Functioning and Change 2 hrs.

Theoretical and empirical study of individual and family functioning. Descriptive models for both normal and deviant behavior are considered. Behavior is studied in the contexts of dyadic relationships, small groups, the family, and other institutionalized interaction systems. Implications are drawn for effecting improvements in individual and family situations. Prerequisite: SWRK 630 or consent of instructor.

632 Organizational Theory and Analysis 2 hrs.

Study of the management of social welfare organizations is approached through theoretical and empirical study of organizational structure, process and goals, interorganizational relationships, organization-community relationships, decision making processes and leadership models. The administrative role in social welfare is developed as a strategic point for social work intervention. Prerequisite: SWRK 630 or consent of instructor.

634 Social Welfare Economics and Politics 2 hrs.

An intensive study of the tension between "rational" planning, political decision making, and the resolution of conflicts between assessments of social welfare needs and programs derived from planning, and the social policies and resource allocations which interest influentials and electorates within the national, state and local political decision making processes. Prerequisite: SWRK 630 or consent of instructor.

636 Individual and Small Group Behavior 2 hrs.

Ego psychology, small group and role theories which are basic to the practice of social treatment are examined. Emphasis will be placed upon utilization of these theories for analytical and diagnostic appraisal, and will include both longitudinal and cross-sectional understanding of individual and group functioning. Prerequisite: SWRK 631 or consent of the instructor.

637 Seminar in Behavioral Theories 2 hrs.

Review and analysis of several theories of personality and behavioral change currently being applied in social treatment practice. Specific theories to be considered are subject to change but may include socio-behaviorism, symbolic interaction, transactional analysis, communication theory, existential therapy, reality therapy and others. Emphasis will be upon developing student ability to understand and evaluate various behavioral theories. Prerequisite: SWRK 631 or consent of instructor.
SOCIAL WELFARE RESEARCH AND TECHNOLOGY

Open to Graduate Students Only


The purposes of this course are threefold: (1) to increase student knowledge of the methods of empirical research as a tool for social work knowledge building; (2) to improve student capacity for research consumption and utilization in social work practice; (3) to develop elementary skills in the machine processing, analysis and presentation of data. Classroom instruction includes lecture and discussion plus laboratory sessions designed to familiarize students with data processing, electronic computer and calculator equipment. Prerequisite: Consent of instructor.

641 Workshop in Action Research 3 hrs.

Laboratory and field study of research processes and methods for testing, evaluating and monitoring on-going, experimental and demonstration social welfare programs, services and operations. Research is developed as a component in the problem solving process for social work practice and is related to other professional actions. Prerequisite: SWRK 640 or evidence of beginning competency in social research.

645 Social Welfare Program Technology 2 hrs.

Study of analytical skills and techniques for planning goal oriented programs and service delivery systems in social welfare. Examples from selected problem areas will be used to illustrate the application of ideas and techniques of modern technology to planning in social welfare. Planning is developed as a central component in the problem solving process for social work practice and is related to other professional actions. Prerequisite: SWRK 661 or consent of the instructor.

648 Supervision, Staff Development and Consultation in Social Welfare Organizations 3 hrs.

Study of ways of maximizing organizational and program-service effectiveness through the utilization of differential patterns of professional supervision, staff leadership, in-service training, staff education and consultation in social welfare organizations. Prerequisite: SWRK 661 or consent of instructor.

SOCIAL WORK PRACTICE

Open to Upperclassmen and Graduate Students

561 Community Development in Selected Countries 3 hrs.

This course is intended to provide basic information needed in understanding community life in developing countries. It places emphasis on the history and philosophy of community development in the context of differential socio-economic systems. It includes understanding of community development as an instrument of social change. It also covers information on program content and analysis of organizational and administrative problems involved in implementing programs. Prerequisite: Consent of instructor.

562 Community Organization in Urban Areas 3 hrs.

Social welfare planning and social action methods are studied as approaches for preventing and resolving aspects of social problems. Emphasis is placed on the organizing of neighborhood and consumer groups in order to increase social interaction and improve social conditions. Prerequisite: Consent of instructor.
563 Social Work Concepts in Rehabilitation  
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  
An overview of the correctional process as it can operate in probation, prison and parole to alter the criminal behavior patterns of legally defined offenders. A broad perspective is employed based on existing criminological theory and accumulated knowledge of the phenomenon of crime and delinquency. Selected techniques for correctional behavior modifications are studied in relation to a typology of normative deviancy in terms of both etiology and rehabilitation. Prerequisite: Consent of instructor.

566 Social Services in Schools  
The role of the Social Worker in elementary and secondary schools and the necessary adaptations in the changes taking place in the educational scene are examined and evaluated. Problem solving approaches are given special attention within the structure and organization of the schools and their relationships with the surrounding community. The specific contributions of a School Social Worker as a helping person to the pupils, the school staff and the homes by various interventive means are explored. Prerequisite: Consent of instructor.  
Open to Graduate Students Only

660 The Profession in Contemporary Society  
The profession of social work, its values, traditions, current social action and service investments, and future opportunities are analyzed within the perspective of contemporary social conditions and issues. The premise is developed that the determination of relevancy and saliency for professional practice needs to be functionally related to the significant social problems extant in society at a given time. Special attention is given to recent events and trends in the human rights “revolution” and its influence upon the social institutions immediately relevant to social work practice. Prerequisite: Consent of instructor.

661 Social Welfare Problem Solving  
Theoretical and analytical study of social problems for the identification and evaluation of differential levels of intervention which can be applied to prevent or solve problems, or to mitigate or treat their consequences. Consideration will be given to the individual, family, group, community and larger social dimensions of problems for the development of “realistic” intervention models which are appropriate and feasible in terms of goals and structures which are applicable under different circumstances. Professional roles and functions relevant for different intervention models will be examined. Prerequisite: Consent of instructor.

662 Social Work Intervention Models  
The social work methods of casework, groupwork, and community organization are examined within three major analytic frameworks: (1) their development as separate methods for different problem situations, (2) as a group of three methods based both on unique and generic concepts which can be combined and expanded to form social work approaches applicable to multiple problem situations, and (3) their reformulation into the two major professional concentrations of social treatment, and social action. Prerequisite: SWRK 661 or consent of instructor.
663 Seminar in Substance Abuse I

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.

664 Social Work Practice in Special Areas

Study of problem solving in specialized areas of social work practice. Focus upon the role of the social work practitioner in assessment, goal establishment and intervention in the use of various social work methods in different arenas of practice. Specific topic will be announced each semester. May be repeated for credit up to a maximum of six hrs. Prerequisite: Consent of instructor.

665 Seminar in Substance Abuse II

Continuation of SWRK 663. This course is cross-listed with Biology, Counseling-Personnel, Psychology, and Sociology.

666 Seminar in Social Treatment

Study of the structure and dynamics of social treatment actions and programs, and the application of behavioral change and environmental modification theory. Emphasis is upon differential formulations of problems for consideration of the applicability of various treatment interventions. Treatment concepts are studied which are judged appropriate for: (1) a range of case situations involving social workers in interaction with specific individuals and groups to achieve changes in individual behavior and adaptation, and in specific interpersonal and group relationships, and (2) the case situations involving problems and disconnections between specific individuals and groups, and community institutions. Prerequisite: SWRK 662 or consent of instructor.

667 Seminar in Social Planning and Administration

First part of a two semester seminar dealing with problems in social welfare planning and administration. Emphasis in the first semester is upon planning for improving social welfare conditions through program changes and alterations in institutional arrangements. Organizational and interorganizational planning fields are given attention. Prerequisite: SWRK 662 or consent of instructor.

668 Advanced Seminar in Social Treatment

This course is a continuation of Social Work 666. Emphasis is placed on differential utilization of a variety of group and individual treatment approaches to a range of person-problem situations within the framework of different social work tasks, roles and organizational contexts. Prerequisite: SWRK 666.

669 Advanced Seminar in Social Planning and Administration

Second part of a two semester seminar dealing with problems in social welfare planning and administration. Analysis of intraorganizational and interorganization-al management issues. Emphasis is placed upon the development of innovative strategies for the structuring and management of social welfare delivery systems. Prerequisite: SWRK 667.
FIELD EDUCATION

Open to Graduate Students Only

671 Field Education in Social Welfare Problem Solving

The first six weeks, the students will engage in special tasks and projects focused on contemporary social problems. Intensive attention will be given to the social welfare system with emphasis on examination of alternative means of intervention of the problem solving approach. Content will be integrated through seminar and classroom discussion. Placement in a field unit within a complex providing opportunities for generic tasks will begin the seventh week. Campus or field based seminars weekly for six weeks; bi-weekly thereafter. Prerequisite: Consent of instructor.

672 Field Education in Social Work Intervention

Continuation of placement in field unit within a complex providing generic tasks with emphasis on scientific method and consideration of alternatives in problem solving means. Campus or field based seminars. Prerequisite: SWRK 671.

676 Field Education in Social Treatment

Placement will be in an agency unit through which experiences in social treatment (casework and group work) are offered. Major emphasis will be on development of skill in direct social work practice with clients. For students demonstrating readiness and who anticipate assumption of supervisory tasks immediately following graduation the placement plan and experiences will afford primary emphasis in skill development and in the range of supervisory role tasks and responsibilities. Campus or field based seminars will supplement the field experience. Prerequisite: SWRK 672 or consent of the instructor.

677 Field Education in Social Planning and Administration

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 the instructor.

678 Advanced Field Education in Social Treatment

Continuation of 676. Students will remain in field placement. Direct social treatment (or supervisory) practice will continue. Added emphasis will be directed to skill development requisite to disciplined performance at the beginning level of competence for social work practice in direct treatment (or supervisory) roles. Attention will be given to the concept of self-responsibility for professional development. Experiences will be offered which provide practice in leadership roles. Campus or field based seminars will supplement the field experience. Prerequisite: SWRK 676.

679 Advanced Field Education in Social Planning and Administration

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.
SPECIAL SEMINARS AND PROJECTS

Open to Upperclassmen and Graduate Students

597 Teaching Apprenticeship in Selected Social Work Curriculum Areas 1-4 hrs.

The course focuses on the development of educational skills for social workers through faculty directed participation in teaching activities in a selected social work course. Specific learning objectives and expectations for apprentices are arranged with participating faculty. This course may be taken a second time (1-4 credits, or a maximum of 8 total toward degree) by a student who wishes to increase teaching skills through applied practice in another social work area.


Individual study in social welfare and social work topics which are not covered in the University's graduate course offerings. Prerequisite: Consent of major advisor and proposed instructor.

Open to Graduate Students Only

681 Graduate Seminar I No credit

The first of four coordinating seminars for academic and field planning, integration and evaluation.

682 Graduate Seminar II No credit

The second of four coordinating seminars for academic and field planning, integration and evaluation. Preparation of plan for professional concentration studies in second year program.

683 Graduate Seminar III No credit

The third of four coordinating seminars for academic and field planning, integration and evaluation.

684 Graduate Seminar IV No credit

The last of four coordinating seminars for academic and field planning, integration and evaluation.

686 Field Studies in Research and Practice 8 hrs.

Special group projects and research which are planned, organized and carried out by faculty and students during the spring session. The nature of specific projects will vary each year, but may include experiences in area communities, other national regions and in foreign countries. The field studies are designed to integrate learning which has taken place during the prior two semesters, provide students with diverse cultural and educational experiences and further the development of research and practice competency. Prerequisite: Consent of instructor. Graded on credit-no credit basis.

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

710 Independent Research 2-6 hrs.
Sociology (SOC)

Chaplin, Chairman: Professors Bennett, Bouma, Brawer, Cothran, Erickson, Horton, Hunt, Lewis, Manis, S. Robin, Schellenberg, Wagenfeld, Walker; Associate Professors Braithwaite, Friday, Keely, Marrett, Ross, Smith; Assistant Professors Bradfield, Landis, MacDonald, Markle, E. Robin, Sonnad, Wait, Walizer, Wienir

Open to Upperclassmen 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.

An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: SOC 200 and 210, or consent of instructor.

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: fifteen hours of sociology, political science, and or economics.

Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: SOC 320.

523 Contemporary Social Movements 3 hrs.
A study of origins, growth, and place in contemporary society of selected social movements, including communism, fascism, Ku Klux Klan, the Townsend movement, and the like. Prerequisite: SOC 200 or 600, or equivalent.

525 Social Psychology of Education 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.

530 (558) Social Forces in Developing Areas 3 hrs.
An examination of the social factors which influence the development of currently developing areas in Africa, Asia and Latin America. These factors include such phenomena as urbanization, nationalism, the "population explosion," welfare institutions and practices, industrialization and the acculturation of ethnic minorities. Prerequisite: SOC 200 or 600, or ANTH 220, or consent of instructor.

Analysis of social change in specific geographic or national areas designated in the course title as scheduled. Change is examined through perspectives from his-
tory, anthropology, and sociology. Currently, courses are being offered on Japan and Latin America. May be repeated for credit with a different area. Prerequisite: SOC 200 or 600.

532 Introduction to Comparative Sociology 3 hrs.
An introduction to the history, major theoretical perspectives, and methodological issues associated with cross-national and cross-cultural studies. Particular emphasis will be placed upon those studies which have been central to the development of the comparative approach in sociology. Prerequisite: nine hours of sociology or consent of instructor.

533 (577) Comparative Institutional Studies 3 hrs.
A comparative study of the structure and functioning of selected aspects of culture in America and other selected countries. The legal structure, family and educational systems, the welfare structure, stratification, economic institutions, political organization, the role of science, and the basic character of social change. Prerequisite: SOC 200 or 600, or equivalent.

534 (559) Studies in Ethnic Relations: Designed Areas 3 hrs.
An investigation of the structure and dynamics of tribal, ethnic, and race relations in the context of current theories of racial and ethnic relations. The course will focus on one or another major geographic or cultural area (Africa, Southeast Asia, etc.) and will compare case studies drawn from different countries within this area. May be repeated for credit with a different area. Prerequisite: SOC 200 or 600, or consent of instructor.

A study of the erosion of traditional tribal systems and the rise of secondary associations and social systems resulting from the impact of European culture and other contemporary world influences. Prerequisite: SOC 200 or 600, or ANTH 220, or consent of instructor.

536 Modern Japanese Society 3 hrs.
An introduction to Japanese society, focusing upon current developments in the processes of industrialization and urbanization. Examines the impact of these processes in Japanese population, family life, village organization, urban community, class structure, and personality. Prerequisite: SOC 200 or consent of instructor.

539 Anthropology of Education 3 hrs.
This course is cross-listed with anthropology and may be taken for either sociology or anthropology credit. See Anthropology 549 for course description.

552 Sociology of Aging 3 hrs.
An examination of the process of aging in American Society, with particular emphasis on the periods of late maturity and old age. Consideration will be given to theories of aging and the social implications of age grading, the meaning of work and retirement, and the status and roles of the aged. Prerequisite: six hours of sociology, including SOC 200 or 600.

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 (514) Juvenile Delinquency and the Community 3 hrs.

A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment, and programs of prevention and control are covered. When feasible, community resource people are invited to participate. Prerequisite: SOC 200 or 600.

565 Correctional Process and Techniques 3 hrs.

An overview of the correctional process as it can operate in probation, prison and parole to alter the criminal behavior patterns of legally defined offenders. A broad perspective is employed based on existing criminological theory and accumulated knowledge of the phenomenon of crime and delinquency. Selected techniques for correctional behavior modifications are studied in relation to a typology of normative deviancy in terms of both etiology and rehabilitation. This course is cross-listed with Social Work 565 and may be taken for either sociology or social work credit. Prerequisite: Consent of instructor.

566 (512) 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 and 564.

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 consent of instructor.

572 Power and Society 3 hrs.

An analysis of the bases, distribution, and uses of power in societies and in local communities. Marxist, elitist, and pluralist theories will be considered along with empirical studies of power. A major goal will be understanding the use of power by various groups in facilitating or controlling social change. Prerequisite: SOC 200 or 600, or equivalent.

573 The Sociology of Political Behavior 3 hrs.

Systematic sociological theory and research applied to the study of political organization and behavior in the United States and in selected countries abroad. Such topics as political parties, voting, bureaucracy, and political ideology will be considered. Prerequisite: nine hours of sociology and/or political science.

574 Sociology of Religious Institutions 3 hrs.

A study of the social role of religious institutions and beliefs with particular reference to the United States. The course considers social factors affecting development of different types of religious institutions and the influence of religion on American society. Prerequisite: SOC 200 or 600, or equivalent.

575 Industrial Sociology 3 hrs.

The sociological study of industrial organizations and of the process of industrialization. The impact of technology and related factors on work organizations.
the structure and operation of labor unions, and the changes occurring in industrial society are discussed. Prerequisite: SOC 200 or 600, or equivalent.

576 Advanced Sociology of Education 3 hrs.
Advanced studies in sociology of education, emphasizing important theoretical and methodological issues, including in-depth examination of such substantive areas as: socialization, teacher-pupil interaction, teacher role, the school as a social institution, and the structure of the school system as it is affected by the community and the society at large. Prerequisite: twelve hours of sociology or consent of instructor.

578 Sociology of Law 3 hrs.
An examination of legal organization, the legal profession, and legal norms in the United States and other western societies. Emphasis will be placed upon the relationship between the legal system and the society in which it functions. Prerequisite: SOC 200 or 600, or equivalent.

580 Sociological Statistics I 3 hrs.
An introduction to statistical reasoning with particular reference to social science research. The course will view statistics as an aspect of scientific inquiry and consider problems of analysis and interpretation of typical social science data. While no mathematics prerequisite is required, a course in college algebra will be helpful.

582 Research Methodology 3 hrs.
An introduction to the basic methods of empirical research in sociology. Theory and techniques of research design, formulating and testing hypotheses, sampling, and the collection, analysis, and interpretation of data are studied. Prerequisite: nine hours of sociology.

590 The Family as a Social Institution 3 hrs.
The family viewed in historical and cross-cultural perspectives. A structural-functional analysis of the family system. Emphasis is placed on change and comparative analysis. Prerequisite: SOC 200 or 600, or equivalent.

592 Family Life Education and Counseling 2 hrs.
Provides the student with a working knowledge of the methods and materials appropriate in the school, the church, and other social situations, for working with individuals and small groups who desire preparation for marriage and parenthood. Some attention will be given to the techniques for handling counseling opportunities arising out of these teaching situations. Prerequisite: SOC 200 or 600, or consent of instructor.

598 Directed Individual Study 2-6 hrs.
A program of independent study (reading or research) to provide the unusually qualified sociology student with the opportunity to explore a topic or problem of interest, under the guidance of one of the faculty of the department. The initiative for planning the topic for investigation must come from the student. Approval is contingent upon the merit of the proposal. Maximum of four hours may be applied toward master's degree. Enrollment beyond the first semester may be either for the same topic or for a new topic. Prerequisite: consent of instructor and the department chairman.
Open to Graduate Students Only

600 Social Dynamics of Human Behavior 3 hrs.
An introductory course in sociology for graduate students. This course is not open to those who have had a foundation course in sociology. The concepts of sociology, cultural anthropology, and social psychology essential to understanding human development and social behavior are systematically explored and integrated.

601 Advanced General Sociology 3 hrs.
A comprehensive survey of trends in the major fields of sociology. Prerequisite: Open only to graduate students in sociology.

604 Seminar in Sociological Theory 3 hrs.
An advanced, intensive study of certain selected theoretical topics of contemporary significance. Prerequisite: One course in sociological theory and consent of instructor.

Advanced study and exploration following seminar format, of topics of interest to faculty and students, for example; various role theory formulations and their usefulness in understanding social behavior, ethnomethodology, philosophy of science, experimental design, Marx, Weber, or other selected theorists. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

610 Sociology of Deviance 3 hrs.
The course deals with theoretical and methodological issues in the sociological and social psychological study of deviance. The social basis of definitions, causation, and treatment of deviant behavior will be examined. Substantive topics, such as alcoholism, homosexuality, and drug addiction will be discussed. Prerequisite: six hours of sociology.

612 Seminar in Corrections and Penology 3 hrs.
Study of correctional institutions, probation, parole, and other means of dealing with criminal behavior. Prerequisite: SOC 200 or 600, 312, and consent of instructor.

614 Seminar in Race Relations 3 hrs.
Advanced study of race relations problems and trends. Prerequisite: SOC 314 and consent of instructor.

615 Patterns of Intercultural Adjustment 3 hrs.
A study of processes of intercultural adjustment involving different racial, national, and religious groups. The factors giving rise to present-day conflict situations are examined and special emphasis is given to techniques of adjustment through individual and community action. Prerequisite: SOC 200 or 600, or equivalent.

A detailed study of a social problem area through student reports and seminar discussion. Instructor will select specific topic. Course is intended to provide intensive joint exploration of significant sociological issues. May be repeated for credit with a different topic. Prerequisite: fifteen hours of sociology and consent of instructor.
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 disaffirm these social and behavioral theories. This course is cross-listed with Psychology.

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

619 Seminar in Substance Abuse II 3 hrs.
Continuation of SOC 618. This course is cross-listed with Biology, Counseling-Personnel, Psychology, and Social Work.

622 Publics and Propaganda 3 hrs.
A systematic analysis of the nature, composition, and etiology of publics and related phenomena such as masses and interest groups, and exploration of propaganda techniques and research. Prerequisite: fifteen hours of sociology and consent of instructor.

625 Advanced Social Psychology I 3 hrs.
A study of major theoretical approaches in social psychology and their methodological and substantive implications. Prerequisite: SOC 320 or equivalent.

626 Advanced Social Psychology II 3 hrs.
Advanced exploration of contemporary social psychology, with selected examples of theory and research to represent current work in socialization, small groups, and cognitive social psychology. Prerequisite: SOC 625.

628 Seminar in Social Psychology: Variable Topics 3 hrs.
An advanced seminar in some specialized aspect of social psychology. May be repeated for credit with a different topic. Prerequisite: SOC 625.

632 Studies in Comparative Sociology: Variable Topics 3 hrs.
Intensive analysis of selected topics using a comparative frame of reference. The seminar will focus on such topics as major theoretical perspectives, methodological issues, and interpretation of studies of such institutions as: criminal and penal systems, educational systems, industrial systems, and family systems. May be repeated for credit with a different topic. Prerequisite: SOC 532 or equivalent, and consent of instructor.

654 Seminar in Population Studies 3 hrs.
A sociological investigation into the dynamics and growth of human populations, emphasizing the historical and on-going debate concerning theoretical and methodological problems in the study of fertility, mortality, and migration processes. The course evaluates the relationship between population processes and modernization, as well as focusing on problem and policy debates in developed countries. Prerequisite: SOC 200 or 600.
673 Formal Organization 3 hrs.
This course analyzes the nature of large-scale, formal organizations, concentrating on their structure, types of organizational goals, processes of control, authority and leadership, and the relationship of organizations to their social environment. Examples of organizations will be selected from different areas such as education, government, medicine, science, leisure, and industry. Prerequisite: nine hours of sociology.

674 Seminar in Political Sociology 3 hrs.
Intensive analysis of selected areas of political behavior in the United States and abroad, within the framework of systematic sociological theory and research. Different topics will be considered each semester the course is offered. Topics will include: political socialization, political roles and organization, decision-making in the political process, political movements, political communication, and alienation and political behavior. Students may repeat the course for additional credit. Prerequisite: SOC 573 and consent of instructor.

676 The School and the Community 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.

680 Studies in Research Methodology: Variable Topics 2-3 hrs.
A seminar on advanced theoretical and methodological problems which are important to systematic research in sociology. Suggested specialized topics include: philosophy of the social sciences, relationship between theory and research, and model building and testing. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

681 Data Collection Techniques 2 hrs.
Sources and procedures for data collection in sociological research including such topics as: instrument construction, interviewing, observation, content analysis, and the use of documents, records, census data, and other published materials of interest to sociologists. Prerequisite: SOC 582 or equivalent.

682 Design and Analysis of Social Research 2 hrs.
A study of research designs and associated techniques of analysis, including principles of measurement, scaling, and systems and change analysis. Prerequisite: SOC 582 or equivalent.

683 Supervised Research 2 hrs.
Purpose is to assist student in selecting, formulating, designing, conducting, and reporting the thesis or essay. Includes continuing reports by students of their research progress. Those who plan to do a thesis may, with permission of the instructor and the graduate adviser, continue with SOC 700, Master's Thesis. (Not offered in 1974-75).
684 Sociological Statistics II 3 hrs.

A second course in statistical techniques of special importance to sociology. The emphasis is on procedures for analyzing problems involving a large number of variables. Topics studied include multiple and partial correlations and regression, analysis of variance, and factor analysis. Prerequisite: SOC 580 or equivalent.


The study of advanced statistical techniques which are important to systematic research in sociology. Suggested specialized topics include: factor analysis, advanced nonparametric techniques, path coefficient analysis, and regression analysis. May be repeated for credit with a different topic. Prerequisite: SOC 684 or equivalent.

688 Research Internship Seminar 3 hrs.

The internship combines field research experience with seminar procedures in research design, data collection, and analysis. May be repeated for a total of nine hours credit. Prerequisite: Open only to graduate students in sociology, with consent of instructor.

689 Seminar in Research Methods in Sociology of Education 3 hrs.

A study of techniques of research particularly appropriate to research in the sociology of education, not normally included in more general methods courses. Topics will include research designs and instruments for investigating consequences of categorization of students as retarded, deaf, blind, etc.; and special procedures for the investigation of learning and social interaction of exceptional students. Special attention will be given to the design and analysis of longitudinal investigation and cohort analysis within the educational system. Prerequisite: SOC 582 and 684.

690 Seminar in Marriage and the Family 3 hrs.

Advanced study of the interactional or institutional aspects of marriage and the family. Emphasis upon any one or two of the following areas during the semester: the social psychology of the family, the family and social structure, comparative family systems, current family research, family problems, social change and the family, or pertinent issues within the sociology of the family. Can be repeated without duplication of material. Class size limited to fifteen students. Prerequisite: One course in the family and consent of instructor.

692 Family Analysis 2 hrs.

An introduction to major theoretical frameworks by which family behavior can be studied and analyzed. It is intended to familiarize students with selected approaches to understanding and studying family behavior and organization, and to introduce research based upon these major frameworks. Prerequisite: SOC 200 or 600, or equivalent.

695 (630) College Teaching Practicum in Sociology 3 hrs.

A practicum in the teaching of sociology in college. Students will attend assigned lectures and seminars, prepare a syllabus for a course in sociology, and deliver at least two supervised lectures to a sociology class. Prerequisite: fifteen hours of graduate sociology courses and consent of instructor.

696 (631) Supervised College Teaching in Sociology 1 hr.

Teaching of a section of a sociology course under supervision. Prerequisite: SOC 695 and approval by department chairman.
Open to Graduate Students Only — Please refer to The Graduate College section for course descriptions.

700 Master's Thesis  
6 hrs.

710 Independent Research  
2-6 hrs.

712 Professional Field Experience  
2-12 hrs.

725 Doctoral Research Seminar  
2-6 hrs.

730 Doctoral Dissertation  
15 hrs.

735 Graduate Research  
2-10 hrs.

Speech Pathology and Audiology (SPPA)

Robinson, Head; Distinguished University Professor Van Riper; Professors Bate, Erickson, Stromsta, Willis; Associate Professor Lohr; Assistant Professors Clark, Jetty

Open to Upperclassmen and Graduate Students

500 Scientific Methods in Speech, Language and Hearing  
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 300, 357.

551 Neuropathologies of Speech  
2 hrs.

This course is concerned primarily with surveying selected communication disorders associated with neuropathologies. Prerequisites: SPPA 200, 202, 203.

552 Communication Problems of the Aged  
3 hrs.

This course is designed to acquaint the student with receptive and expressive communication problems common to older adults. Emphasis will be on the clinical management of characteristic organic speech disorders and impaired auditory functions associated with aging.

554 Speech and Hearing Therapy in the Schools  
2 hrs.

Study of clinical work with speech and hearing handicapped children in the school setting. Prerequisites: SPPA 351, 353, 354, 355.

555 Hearing Measurement  
2 hrs.

This course is designed to acquaint the student with principles, theories, and methods of hearing measurement which provide the basis for clinical and audiometric procedures.
556 Rehabilitative Audiology 3 hrs.
Orientation to the clinical management of communication problems associated with auditory impairment.

557 Educational Audiology 3 hrs.
This course deals with the educational, psychological and vocational needs of the hearing impaired child and the parameters that affect educational programming.

595 Oral Language Development and Dysfunction 2 hrs.
This course is designed to provide the student preparing to be a classroom or special teacher with information about the nature of oral language, its development, conditions associated with dysfunction, and the principles and methods of treatment for children with specific speech or language disorders. Not open to students who have had SPPA 201 or its equivalent.

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 2 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 medico-legal 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
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
This course is intended to provide theoretical bases for the examination of persons with speech, hearing, and language disorders.

654 Diagnosis and Appraisal II: Procedures
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
In this registration students are afforded the opportunity for intensive participation in out-patient diagnostic examinations.

657 Disordered Language Development
Procedures and techniques for the identification, diagnosis and clinical management of developmental disorders of language are explored intensively in this course.

658 Theoretical Bases for Therapy
In this course disorders of communication are examined in terms of servo-system, learning theory, and personality theory.

659 Principles of Professional Practice
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
Organic and functional disorders of laryngeal and resonator origin are studied in depth.

661 Articulation Disorders
This course considers in detail the nature and treatment of functional misarticulations and of misarticulations associated with cleft palate.

662 Stuttering
Theories and therapies applicable to the understanding and clinical management of stuttering are studied in depth.

663 Aphasia in Adults
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 descriptions
700 Master's Thesis

6 hrs.

710 Independent Research

2-6 hrs.

712 Professional Field Experience

2-12 hrs.
College of Business

DARRELL G. JONES
Dean

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

Burke, Head; Professors Everett, Neubig, Welke, Wetnight; Associate Professors Daniels, Mitchell, Newell, Schaeberle, Sheppard; Assistant Professors Morris, Zelechowski

Open to Upperclassmen and Graduate Students

516 Auditing
The theory and practice of making audits of business enterprises and government agencies. Prerequisite: ACTY 311 or equivalent.

518 Accounting Theory and Problems
Theoretical consideration of accounting problems. The analysis of the type of problems that are found in C.P.A. examinations or encountered by business management is included. Prerequisite: Undergraduate major in Accountancy or consent of instructor.

521 Studies in International Accounting
A study of the differences in the Principles of Accounting Auditing Standards and Auditing Procedures in selected countries of the world. Emphasis is placed on those countries which are important in world commerce. Prerequisite: Consent of instructor.

522 Cost Accounting — Theory and Practice
The development and application of cost accounting principles to industrial situations. The course includes the application of costs to operations and to products. The preparation and analysis of detailed cost information, as well as methods and procedures for solving complex cost problems encountered in industry, are included as a major part of the course. Prerequisite: ACTY 322.

524 Studies in Tax Accounting
Special studies related to tax problems of individuals, partnerships and corporations. Emphasis on corporation taxes, trusts and estate tax problems. Gift and estate taxes and an introduction to tax planning are included. Prerequisite: ACTY 324 or written consent of instructor.

598 Readings in Accounting
Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

Open to Graduate Students Only

505 Administrative Accounting
Basic topics are the accumulation of financial data and the preparation of financial statements. Included are accounting topics related to business assets and entities and an introduction to the analysis and interpretation of financial statements. This is a program prerequisite course for MBA and MS students in the College of Business (therefore graduate credit is not earned). Closed to students with credit for ACTY 210, 211 or equivalent. May be taken on a credit-no credit basis.

601 Research Methods in Accounting
This course is designed to familiarize the student with the methods and proce-
dures for planning, conducting, and reporting individual research projects in accounting.

### 606 Advanced Financial Accounting

3 hrs.

An intensive study of asset valuation, liabilities, corporate capital, and their relationship to income. Prerequisites: ACTY 211 or 505.

### 607 Accounting Control and Analysis

3 hrs.

A study of financial systems and techniques used for profit planning and control of a business firm. Budgetary concepts and variance analysis are developed for cost centers, responsibility centers, and profit centers. Organizational relationships and implications are examined in the development of operational controls, management controls, and strategic planning. This course is a study of managerial accounting and is in the graduate business core. Prerequisite: ACTY 505 or equivalent.

### 608 Advanced Accounting Theory

3 hrs.

A study of the underlying concepts and principles of corporate accounting. Prerequisite: ACTY 606 or equivalent.

### 610 Seminar in Accounting

3 hrs.

Intensive examination and study of the underlying postulates, concepts, and principles of accounting. Income determination, asset valuation, and equities are emphasized in succeeding seminars. Course may be repeated under different topics. Prerequisite: Consent of instructor.

### 617 Seminars in Controls

3 hrs.

The function of controls in the organization. The controller's relationship to the construction, control, and interpretation of accounts for the internal and external administration of the organization is emphasized. Prerequisites: Will vary with topic.

### 622 Advanced Cost Accounting Concepts

3 hrs.

A study of the more mature methods of cost measurement and control. Includes standard cost, budgetary control, profit-volume analysis, direct cost and return on employed capital. Prerequisite: ACTY 322 or written consent.

### 624 Business Tax Planning

3 hrs.

An advanced course in business taxation involving the identification and analysis of tax problems. Income tax strategy is studied involving the timing of income, types of business organizations, and the various alternative tax treatments. Tax problems of corporate reorganizations, liquidations, estates and trusts, partnerships, and capital gains will also be included. Case studies will be used and research in taxation will be emphasized. Prerequisite: ACTY 324 or written consent.

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

### 700 Master's Thesis

6 hrs.

### 710 Independent Research

2-6 hrs.

### 712 Professional Field Experience

2-12 hrs.
Business Education and Administrative Services (B ED)

Moskovis, Head; Professors Bournazos, Jones, Marietta, McKitrick, Niemi; Associate Professors DeYoung, Hatch, McBeth; Assistant Professors Beellick, Branchaw, Halvas

Open to Upperclassmen and Graduate Students

554 Topics in Business Communication 3 hrs.
An intensive study of a topic in Business Communication such as report writing, organizational communication, business media, business publicity, and others. The topic will be announced in advance. May be repeated for credit.

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.
An intensive study of a selected topic in Administrative Services such as office systems, work measurement and simplification, forms control and design and others. The topic will be announced in advance. May be repeated for credit.

583 Coordination Techniques in Office Education 2 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 future developments in secretarial subjects.

586 Improvement of Instruction in Typewriting 3 hrs.
A study of the latest research findings, materials, teaching procedures, tests and measurements, and future 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 future 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 office vocational certification. Open to seniors and graduate students 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 future developments in basic business and economic education.

596 Independent Study 1-4 hrs.

A directed independent project in an area of business education or administrative services. Prerequisite: Consent of department head.

598 Readings 1-4 hrs.

A series of direct readings in the area of business education or administrative services. Prerequisite: Consent of department head.

Open to Graduate Students Only

600 Seminar in Business Education and Administrative Services 3-4 hrs.

Intensive problem solving in areas of business education or administrative services. May be repeated for credit.

680 Principles of Business Education 3 hrs.


682 Guidance in Business Vocations 3 hrs.

The challenges of business education in a changing world of work. Problems and objectives of business education to meet vocational choices of students in today's automated, free enterprise democratic society. Particular emphasis is given to the career education and counseling of the business student.

683 Supervision and Administration of Business Education 3 hrs.

Principles and problems involved in the administration and supervision of business education programs. Emphasis is placed on the work of the department head, city, and state business education supervisors.

685 Research in Business Education 3 hrs.

An examination and analysis of research in business education with emphasis on utilization of these findings in the upgrading of instruction. Research tools and methodology are also examined.

690 Methods and Materials in Business Education 3 hrs.

A consideration of the latest research methods, materials, equipment, curriculum development, objectives and standards in the teaching of specific business subjects. May be repeated for credit.

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

700 Master's Thesis 6 hrs.

710 Independent Research 2-6 hrs.
712 Professional Field Experience  2-12 hrs.

720 Specialist Project  2-6 hrs.

**General Business (BUS)**

**FINANCE AREA**

Schneider, Head; Professors Burdick, Edwards, Grossnickle; Associate Professor Wiseman

Open to Upperclassmen and Graduate Students

520 Portfolio Analysis and Management  3 hrs.

In depth approach to the development and administration of security portfolios. Emphasizes the investment strategies followed by individuals and by portfolio managers in financial institutions. Latest portfolio strategies and techniques are studied and evaluated. Prerequisite: Finance 326 or equivalent.

521 International Finance  3 hrs.

A study of contemporary problems in international finance. The course examines the international money markets, working capital considerations and capital budgeting problems as faced by the multinational corporation. Prerequisites: Finance 320 or equivalent or consent of instructor.

526 Group Insurance and Pensions  3 hrs.

By means of problems and cases this course analyzes in detail the following areas: group life and health insurance, business life and health insurance, insured pension plans and estate and tax planning. Prerequisite: Finance 322.

528 Insurance Company Management  3 hrs.

The topics studied by means of cases and problems in this course include multiple-line insurance operations, special problems in functional areas of industry operations and personal and commercial risk surveys and analysis. Prerequisite: Finance 323.

598 Readings in General Business — Finance  1-4 hrs.

Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

Open to Graduate Students Only

608 Financial Management  3 hrs.

Case study of the principles and problems underlying the management of capital in the business firm. Stresses the financial officer's responsibilities. Skills developed in the marshalling and interpreting of figure data in such activities as making and implementing capital expenditure policies, solving short-term and long-term financing problems, establishing dividend policies, effecting mergers and consolidations, and adapting to trends in financial markets. Demonstrates financial management's role in the total management effort. Prerequisite: Finance 320 or equivalent.
620 The Capital Market

Study of the sources and flow of demand and supply of credit. The business application of monetary theory to financial institutions and their operational problems. Prerequisite: Finance 310 or equivalent.

621 Investment Analysis and Management

A detailed analysis of the investigation of corporate securities as long-term investment media, largely from the standpoint of the individual investor. Investigates the techniques for security valuation and portfolio management, with some discussion of financial institution investment procedure. Considers mechanics, markets, institutions and instruments important to the investment process. Not open to students with credit earned in Finance 326 or its equivalent. Prerequisite: Finance 320 or equivalent.

622 Corporate Financial Problems (Topics)

A study of current financial management problem areas. A specific area will be covered each time course is presented. May be repeated. Prerequisite: Finance 320 or equivalent.

624 Financial Statement Analysis

Intensive financial analysis to establish trends and fiscal controls in business operations. Structural investigation of financial statement relationships utilizing ratios, capitalization of earnings, and other analysis media fundamental of management decision and action. Prerequisite: Consent of instructor.

626 Insurance and Government

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

628 Risk Management in Business

This course includes the function of risk management; responsibilities of risk managers and their staff; sources of risk information; analysis of business risks; alternative methods of handling risks; selection of proper insurance coverages; and selection of carriers and intermediaries. Case analysis is used. Prerequisite: Consent of instructor.

LAW AREA

Professor Morrison; Associate Professors Bliss, Casey; Gossman; Assistant Professors Batch, McCarty

Open to Upperclassmen and Graduate Students

541 Law of Sales and Personal Property

The study of law as it applies to the sale of goods emphasizing the legal aspects of marketing a product. Prerequisite: Law 340.

542 Law of Real Estate

The study of land ownerships, sales agreements, including the legal duties of the real estate broker, mortgages, land contracts, leases, zoning, condemnation and urban land development problems. Prerequisite: Law 340.
543 Legal Problems of International Business  
A study of the United States, foreign and international legal problems affecting business enterprises in transnational operations. Prerequisite: Law 340.

544 Law of Business Organization  
Study of business organizations including partnerships and corporations. Prerequisite: Law 340.

598 Readings in General Business — Law  
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  
An analysis of the current legal problems as they apply to the control and regulation of various types of business enterprises. Prerequisite: Law 340.

609 Law and the Administration of Higher Educational Institutions  
A survey of statutes, case decisions and developing legal principles affecting the administration of higher educational institutions. Teachers, counsellors, staff and administrative personnel will become acquainted with some of the legal rules and procedures with which today's colleges and universities must deal.

650 Managerial Aspects of Labor Law  
Background and consequences for business policy of law governing collective relationships between employers, employees, and their representatives with special emphasis on interpretation and evaluation of current legislation. Prerequisite: Law 340.

GENERAL AREA

Open to Upperclassmen and Graduate Students

504 International Business Seminar  
A foreign study seminar designed for qualified and capable undergraduate students, graduate students, teachers, and business executives. The seminar introduces participants to a first-hand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned readings. Undergraduate or graduate credit of six hours, in one of the following departments upon consent of department head: Accounting, Business Education, General Business, Management or Marketing.

Open to Graduate Students Only

600 Seminar in business  
Intensive problems solving in the primary business fields. Consent of instructor required. May be repeated for credit.

Open to Graduate Students Only — Please refer to The Graduate College section for course descriptions
700 Master’s Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.

Management (MGMT)
Wallace, Chairman; Professors Booker, Schneider, Hartenstein, Keenan, Leader, Rizzo; Associate Professors Hill, Upjohn; Assistant Professors Mason, Ryan

Open to Upperclassmen and Graduate Students

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

540 Advanced Statistics 3 hrs.
A second course in statistics complete enough to be used with limited background. Includes probability theory, t, Z, F, and binomial probability distributions, hypothesis testing with sampling theory and Type I, Type II errors, point and interval estimates, statistical inference, comparison tests (two-sample and K-sample), association tests (correlations and regression), and nonparametrics tests. Prerequisite: MGMT 200.

553 Planning and Analysis for Production 3 hrs.
An examination of modern methods of analysis, their relation to the production process and their utilization in management planning. Cases and problems will be utilized. Prerequisites: ECON 200, 201 and MGMT 200.

554 Introduction to Management Science 3 hrs.
Modern scientific techniques used in business and industry for controlling operations, maximizing profits or minimizing costs. Allocation of men, money, and machines among alternative uses. Other strategies and control methods applicable to management, marketing, and finance. Prerequisite: MGMT 200.

555 Electronic Data processing (Topic) 3 hrs.
Computer programming in FORTRAN and COBOL languages. Special topics relating to the planning, organization and direction of management information systems in business, industry and government. The course may be repeated for different programming languages and topics.

557 Inventory Management 3 hrs.
The practical application of modern management techniques in the definition and solving of problems in inventory systems. Prerequisite: MGMT 200 or equivalent.

564 Simulation Models 3 hrs.
The student will develop a model for the integration of the functional areas of business to create more successful management policies and organizational structures.
598 Readings in Management 1-4 hrs.
Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Permission of instructor.

Open to Graduate Students Only

600 Seminar in Management (Topic) 3 hrs.
Intensive problem solving in advanced management topics, including the preparation of a major staff report. Repeatable for different topics.

601 Data Acquisition, Reduction and Interpretation 3 hrs.
The uses and methods of research are examined as a strategy for reducing risk and uncertainty. Strategies will be evaluated under the criteria of minimizing error, economizing effort and effectively achieving the project objectives. Data classification, collection, recording and transformation techniques are related to the use of information for making judgments and decisions.

602 Data Processing and Computer Usage 3 hrs.
This course will provide the student with the opportunity to relate selected problems in his discipline to readily available analysis subroutines. Alternative methods of data manipulation will be reviewed.

607 Management Analysis and Practice 3 hrs.
Basic core course in Management for the MBA program. The spectrum of management theory and practice will be reviewed.

630 Systems Analysis (Topic) 3 hrs.
A project team effort to analyze a specified problem with the topic area listed. Separate research teams will be structured around relevant experience and training. Advanced standing (21 hours) and departmental permission required. may be repeated for credit.

642 Statistical Interpretation 3 hrs.
A survey of the advanced statistical techniques as applied to business problems. Includes probability theory; estimation of proportion, means and variances; test of hypothesis, simple and multiple regressions. Also includes topics selected from the following fields: sequential analysis; nonparametric methods; elements of experimental design; analysis of variance and introduction to statistical decision theory. Prerequisite: MGMT 200.

651 Analysis of Administrative Behavior 3 hrs.
Analysis of the contributions of management theory and of the behavioral sciences to modern administrative practices; group and individual behavior as related to and affected by the administrative process, lectures, cases, conferences. Not open to students having received credit for MGMT 451.

652 Business Policy 3 hrs.
Integration of background acquired by the student from such varied fields of instruction as accounting, finance, industrial management, law, personnel administration and marketing. Top management problems emphasized.

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 environment design, learning, problem solving and creativity, incentive systems, individual and organizational analysis and evaluation.

655 Organization Theory 3 hrs.
An interdisciplinary approach towards the analysis of the variables affecting the modern business organization with emphasis on the relationship of the role of the social sciences to the behavior of the segments of the firm.

658 Advanced Management Practices 3 hrs.
Independent study of current trends and advanced problems in the organization and management of complex organization. Prerequisite: twenty-one hours. May be repeated for credit.

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

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

Marketing (MKTG)
Trader, Head; Professor Otteson, Hardin; Associate Professors Orr, Varble; Assistant Professors Lindquist, Pletcher
Open to Upperclassmen and Graduate Students

572 Advertising: Media Campaigns and Strategies 3 hrs
Evaluation of media and advertising through communications research, analysis and preparation of advertising as a communication tool. Includes theory and practice of media research, media plans, schedules, and strategies. Case studies. Prerequisites: MKTG 374 and 474.

573 Marketing Research 3 hrs.
Designed to include an introduction to market research, the procedures and applications of research, and the accomplishment of a research project. Term project includes selection of a problem, preparation of a questionnaire, data collection, analysis of data, and final report. Prerequisites: MKTG 370, MGMT 200.

574 Marketing Logistics 3 hrs.
An analysis of problems relating to the movement, handling and storage of industrial products. Attention will also be given to changing market conditions and industrial structure as they affect the physical distribution of industrial goods. Prerequisites: MKTG 370, MGMT 200.

575 International Marketing 3 hrs.
An examination of the theories and principles of international marketing. Attention directed to related commercial policies, trade practices and procedures,
and marketing research tools and techniques needed to locate and evaluate foreign markets. Prerequisite: MKTG 370 or permission of instructor.

576 Marketing Problems 3 hrs.
Analysis of current marketing problems utilizing the case method of study. Prerequisite: MKTG 370 or permission of instructor.

598 Readings in Marketing 1-3 hrs.
Directed individual study of bodies of knowledge not otherwise treated in departmental offerings. Prerequisite: Consent of instructor.

Open to Graduate Students Only

607 Marketing Management 3 hrs.
Analysis of marketing activities from management point of view. Includes study of decision making relative to competition, demand analysis, cost analysis, product analysis, product design, promotion, pricing, and channels of distribution. Prerequisite: MKTG 370.

671 Quantitative Analysis for Marketing Decisions 3 hrs.
Application of quantitative methods of marketing decisions; utilized 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.
Decision-making, case method, including exposure to communications, demand analysis, promotional objectives, personal selling resource management, reseller support, and promotional campaigns.

675 Analysis of Distribution Systems 3 hrs.
Organization, structure, and behavior channels of distribution; focus on various distribution systems through which goods are marketed; cases and problems utilized.

677 Buyer Behavior 3 hrs.
Analysis of influences effecting consumer behavior: cultural, social, economic, needs, wants, goals, purchasing patterns, and product adoption and diffusion; small scale behavior research project.

678 Seminar in Marketing 3 hrs.
Intensive problem solving in the primary business fields. Consent of instructor required.

679 Market Programming 3 hrs.
Designed for special emphasis toward developing a total marketing strategy within an organization. Practical application of the marketing tools and techniques to a current problem originating in a business organization. Prerequisite: Consent of instructor.
Open to Graduate Students Only — Please refer to The Graduate College section for course descriptions

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<th>Course</th>
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College of Education

JOHN E. SANDBERG,
Dean

KENNETH F. SIMON,
Associate Dean

MORVIN A. WIRTZ,
Associate Dean

Graduate Offerings:
Blind Rehabilitation
Counseling and Personnel
Directed Teaching
Educational Leadership
Physical Education for Men and Women
Special Education
Teacher Education
Blind Rehabilitation (BLRH)

Blasch, Chairman; Associate Professors Kaarlela, Suterko; Assistant Professors Lennon, Rittersdorf, Weessies, Widerberg

Open to Upperclassmen and Graduate Students

590 Physiology and Function of the Eye 2 hrs.
The anatomy, structure and function of the eye. Various eye diseases and malfunctions are stressed. The student is given an opportunity to observe all types of eye conditions and eye prosthesis.

591 Braille and Other Communication Methods 2 hrs.
A course designed to develop a basic knowledge of the braille literary code, including reading and writing, and to gain familiarity with other methods of communication used by visually impaired persons.

592 Education of the Blind and Partially Sighted 2 hrs.
An overview of the education of visually handicapped children and adults. An introduction to the literature, history, principles, practices and problems in the field, including curricular and methodological adaptations of various educational programs.

593 Methods and Techniques of Teaching Braille and Other Areas of Communication 3 hrs.
Provides students with the ability to teach areas of communication essential to the blind, such as: social communication, use of Braille, typing, script writing, electronic devices and other media. Opportunity for supervised practical application of methods will be afforded to the student.

594 Principles of Orientation and Mobility 3 hrs.
An examination, and application, of the fundamental principles underlying the acquisition of sensory information by severely visually impaired individuals.

595 Introduction to Methods of Independent Mobility for The Blind 2 hrs.
Techniques are acquired under conditions which enable the student to gain an insight into the experiences of blind individuals, as related to travel skills. Emphasis is placed on the utilization of the remaining senses and their relevancy to interpretation of environmental information. Consent of instructor.

596 Practicum in Orientation and Mobility 4 hrs.
Orientation and mobility techniques and the proper methods of incorporating them into a person's method of travel. Guided observation and practice with blinded individuals ranging in age from the prekindergarten through the aged in various environments, such as: school residence, community, and work situations. Consent of instructor.

597 Introduction to Cectuinity 2 hrs.
Exploration of ways to assess the functional use of residual vision. Methods and means of increasing the functional use of residual vision and defining its limitations. Prerequisite: BLRH 590.
599 Gerontology 2 hrs.

The course offers an overview of the characteristics, circumstances and needs of the aging population of the United States, and explores the types of services available to meet their needs. The course will focus upon the demography of the aged, the physiological changes, and chronic diseases of aging, the social and economic aspects of aging, the psychological changes which come with age, and a review of the community resources which serve the aged.

Open to Graduate Students Only

664 Integration of Education and Social Work Techniques 3 hrs.

This course is a specialized social work course restricted to students in preparation for teaching the adult blind. It is designed to afford an opportunity for a discussion of behavior and the effect of behavior on learning and of counseling and guidance as aspects of a sound teaching relationship. Field observations and some limited work with blind clients will give the student a chance to present realistic situations in group discussion as problems in learning. Open to Blind Rehabilitation students only. Prerequisite: Consent of instructor.

692 The Dynamics of Blindness and Rehabilitation 2 hrs.

The development of the status of the blind and their integration into a sighted society. The relationship of the emotional and social correlates of blindness to the development of the blind individual as a contributing member of society.

693 Counseling of The Blind (Field) 2 hrs.

Acquaints the intern with techniques and procedures used in testing and counseling blind individuals.

696 Internship in Orientation and Mobility 8 hrs.

The intern, under close supervision of a Master Therapist, instructs blinded children and adults in all phases of orientation and mobility. The intern is afforded the opportunity to work with all levels of student in various environments. He also aids the Master Orienter in working with multihandicapped blind individuals.

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

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

Counseling and Personnel (C-P)

Martinson, Head; Professors Betz, Carlson, Engle, Faunce, Griffeth, Manske; Associate Professors Lamper, Mazer, Oswald, Urbick, Williams; Assistant Professor Bullmer

Open to Uperclassmen and Graduate Students

580 Principles and Philosophy of Guidance 2 hrs.

An introductory course which presents a thorough investigation of the philosophical concepts underlying guidance service programs: a survey of the history and principles of guidance; an overview of guidance services. Open to all students, but is not intended for counseling majors.
581 Interpretation and Use of Tests in Guidance 2 hrs.
Designed to familiarize students with various psychological tests and scales that may be used in school guidance programs. Tests are taken and scored by students, and the results are interpreted and evaluated. Open to all students, but is not intended for counseling majors.

582 The Information Service in Guidance 2 hrs.
Designed to introduce teachers, and agency and personnel workers into the world of work. Areas of occupational, educational, personal and social information are studied. Vocational development theories are investigated and their application to processes of guidance and counseling are discussed. Open to all students, but is not intended for counseling majors.

583 Guidance Workshop 2-4 hrs.
Designed for teachers and counselors who wish to study particular guidance problems and procedures in relation to their local guidance program. Open to all students, but is not intended for counseling majors.

584 Elementary School Guidance 2 hrs.
Designed to give teachers, administrators, and elementary counselors an understanding of the principles and techniques of guidance in elementary schools. Open to all students.

598 Readings in Counseling and Personnel 1-4 hrs.
An advanced student with good academic record may elect to pursue independently the study of some topic having special interest to him. The topic chosen must be approved by the instructor involved, and arrangements made with his consent. May be selected more than once.

Open to Counseling and Personnel Graduate Students Only (Graduate students from other programs may be admitted by permission of instructor.)

600 Interpersonal Communication Skills 1 hr.
Designed to provide students an opportunity experience group counseling with the assistance of qualified group counselors through group interaction with other students. Goals of this unit include improved interpersonal communication skills as well as improved self-awareness and understanding and self-evaluation for the student. Graded on a Credit-No Credit basis. May be repeated.

610 Organization of Pupil Personnel Services 3 hrs.
A basic introductory unit encompassing a thorough investigation of philosophic concepts undergirding counseling and personnel programs in the schools. The history, principles, organization and administration of the program services are surveyed.

611 Introduction to Community and Agency Counseling 3 hrs.
A survey of counseling services, procedures and current practices of various national, state and local agencies. Emphasis is upon counseling practice in agencies with families and individuals of all ages.

612 (695) Student Personnel and Counseling in Higher Education 3 hrs.
History of growth and administration of student personnel services in community colleges, four-year college and universities. Specific attention will be given to
selection and admission of students, orientation, housing, counseling, vocational choice, health, religion, student financial aid, foreign students, extracurricular activities, and standards and procedures.

615 Introduction to Career Development 3 hrs.

Designed as an introduction to: (1) basic resources available in the area of occupational, educational, personal and social information; (2) theories of vocational development and their application to the processes of counseling and personnel; and (3) the world of work, and especially an analysis of work's impact on American culture.

617 Introduction to Theories of Counseling 2 hrs.

An introduction to the nature, rationale, development, research and use of theories in counseling. Major points of view including the psychoanalytic, the rational, the behavioristic, the phenomenological and the existential are studied and compared. Must be taken concurrently with C-P 618. May be repeated independent of C-P 618.

618 Counseling Techniques 2 hrs.

The purpose of this unit is to help students develop skills which are essential to effective counseling. Emphasis is upon characteristics of the counseling relationship and their effect upon counseling process. Learning activities such as role playing, listening to audio tapes, video taping, practice interviews, and actual counseling situations are provided to help make theoretical constructs concrete and practical and expose the student to the counseling relationship. Prerequisite: C-P 600, C-P 617 shall be taken concurrently with C-P 618. May be repeated independent of C-P 617.

619 Tests, Measurements and Appraisal 4 hrs.

This course emphasizes application of testing and measurement procedures in counseling. Students are expected to study various psychological tests and scales used in counseling and personnel services programs and to administer, score and interpret these devices. Competencies are developed in the use of questionnaires, school records, evaluations, autobiographies, anecdotal records, sociometrics, rating scales, case studies and conferences, and parent-teacher conferences. Prerequisite: TEED 601 or equivalent.

624 (682) Research in Counseling and Personnel 3 hrs.

Designed to encourage independent study and research in the area of counseling and personnel services. The student will formulate, design and submit a research project. Prerequisites: C-P 610 or C-P 611 or C-P 612; TEED 601 or equivalent.

628 (684) Practicum and Professional Experience 4 hrs.

This unit provides practical work in the student's area of specialization. Real life experiences are provided in a laboratory setting so that the student may put into practice the knowledge and behaviors gained during previous studies. In addition, a supervised professional experience is required in a setting appropriate to the student's vocational objectives. Sections are provided for students in counseling programs and in the student personnel program. Prerequisites: C-P 610 or C-P 611 or C-P 612; C-P 615, C-P 617, C-P 618, C-P 619; credit for C-P 600 and completion of the departmental personal counseling requirement; six credit hours in cognat area.
629 Professional Seminar 2 hrs.

This unit will offer the student an opportunity for in-depth examination of current issues, research and practices in the area of specialization. Sections are offered in (1) school counseling (2) agency counseling and (3) higher education counseling and personnel administration. C-P 628 normally should be taken concurrently with C-P 629.

630 Studies in Higher Education 2-6 hrs.

Designed for career people in the fields of Administration and Student Personnel Services of Higher Education. The workshop approach will be used to introduce students to such areas as Admissions, Registration, Staff Personnel, Administrative Organization, Financial AIDS, Societal and Economic Student Population Levels, Foreign Student Programs and other areas of Higher Education.

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.

685 Field Practicum in Counseling 2-4 hrs.

This course is designed to enhance the skills of practicing counselors holding the M.A. degree in Counseling and Personnel. Emphasis is placed upon supervision of the counselor during his experiences with at least one long-term counseling case. Recent research findings in counseling, and current issues in personnel services will be discussed.

686 Topical Seminar in Counseling and Personnel 2-4 hrs.

Seminar to explore in depth current topics relevant to counseling and personnel services for advanced graduate students with sufficient maturity and experience to engage in seminar-structured learning. May be repeated for credit. Topics will be designated by professors offering the seminar and may include:

a. Analysis of individual
b. Evaluation of personnel services programs
c. Creative expression and personal flexibility
d. The development and coordination of personnel services programs
e. Administration of student personnel programs in higher education
f. Philosophy of science for the behavioral sciences
g. Counseling theories

687 Group Procedures in Education 2 hrs.

An analysis of the role and function of group procedures in education with special emphasis on the elements of group process and interaction. Attention is given to relevant research in group procedures. Limited experience for students is provided in group counseling, group guidance, and task group work.
691 Counseling Supervision

Designed for advanced graduate students who plan to assume leadership responsibilities in the continuing education of counselors. Includes didactic discussions of the elements of counseling supervision, and practical experience in counselor education.

693 Advanced Practicum in Counseling and Psychotherapy

An advanced practicum designed to increase the competency of experienced counselors and therapists. Staffing conferences approach to the analysis of continuing cases presented by the participants will be combined with tapes and live demonstrations of advanced techniques, e.g., desensitization, hypnosis. Prerequisite: Consent of instructor.

694 Vocational Development Theory

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

Supervised practice in counseling with groups of varying types and ages. Staffing conferences of on-going groups will use audio and video tapes, content analysis and other evaluative techniques. Prerequisite: Consent of instructor.

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

700 Master’s Thesis

710 Independent Research

712 Professional Field Experience

720 Specialist Project

725 Doctoral Research Seminar

730 Doctoral Dissertation

Directed Teaching (DTCH)

Sebaly, Chairman; Associate Professor Benne

Open to Graduate Students Only

669 Strategies in Teaching: Variable Topics

Designed for teachers and administrators who work with student teachers and wish to study supervisory and administrative problems and procedures. Emphasis is placed upon the development skills in evaluation, planning, and the various supervisory strategies in working with student teachers in the classroom as well as the building or school system. Note is taken of current literature, and research methods used in working with student teachers. Prerequisite: Teaching experience or consent of instructor.
Educational Leadership (EDLD)

Roth, Chairman; Professors Boles, Martin, Stufflebeam, Viall, Weaver, Williams; Associate Professors Bunda, Davenport, Dykstra, Hellenga, Ploughman, Warfield

Open to Graduate Students Only

660 Administration and Supervision 2-4 hrs.

Offerings in this area are intended to allow educational leaders to acquire the general understandings, skills, and tools necessary in the operation of educational agencies and to provide service courses for teachers and other education personnel. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:

a. Administration and Supervision of Adult Education  
b. Principles of Community Education  
c. Practicum in Community Education  
d. Planning of Educational Facilities  
e. School Finance  
f. School Business Management  
g. Mott Administration Seminar  
h. Introduction to Educational Leadership (the first course in any degree program in this department)  
i. School Law  
j. School Principalship  
k. Field Seminar (an interdisciplinary approach to in-service problem)

661 Human Relations 2-3 hrs.

These offerings are for students who are expected to have background in the behavioral sciences. Emphasis is on skills that give one proficiency in working with people: the ability to understand people and how they work and live and get along together; and to use that understanding in getting the best from people, individually and in groups. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings in any one semester or session.

Typical topics to be offered include:

a. Supervision  
b. Administration of Staff Personnel  
c. Mott Colloquium  
d. Public Relations  
e. Practicum in Leading  
f. Teacher-Administrator Relationships

662 Concept Formation 2-4 hrs.

Each of these offerings focuses on concepts that should help the student to see the relationships of parts to wholes, of education to the larger culture, of specific occupations to overall institutionalized functions and to the world of work. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:
663 Research

Offerings are intended to provide the necessary understandings, attitudes, and skills to make every student working for a degree in this department a competent and discriminating consumer of research. The student who wishes to do so can specialize sufficiently to become a competent researcher or a director of research. Topics will vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:

a. Introduction to Research
b. Design Data Analysis I
c. Design Data Analysis II
d. Dissertation Seminar
e. Survey Research
f. Cognitive Measurement
g. Affective Measurement
h. Theories of Evaluation

Independent Studies

Offerings in this area are intended to allow a student in any degree program in this department to demonstrate how well he can learn working alone but under faculty supervision. Offerings are intended also to allow the student to become acquainted on a one-to-one basis with at least one faculty member.

Open to Upperclassmen and Graduate Students

598 Readings in Educational Administration 1-4 hrs.

An advanced student with a good academic record may elect to pursue independently the study of some topic having special interest to him. Topic chosen must be approved by and arrangements made with written consent (C-card signed by the instructor to be involved). May be elected more than once.

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

700 Master's Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.
720 Specialist Project 2-6 hrs.
725 Doctoral Research Seminar 2-6 hrs.
730 Doctoral Dissertation 15 hrs.
735 Graduate Research 2-10 hrs.
Physical Education for Men and Women (PEGR)

Men's Department Head, Hoy; Women's Department Chairman, Meyer; Professors Dales, Large, Ray; Associate Professors Chambers, Cheatum, Davis, Doolittle, Jevert, Jones, Miller, Orlofsky, Slaughter, Zabik

Open to Upperclassmen and Graduate Students

514 Methods and Materials in Health Education 2 hrs.
Lectures and demonstrations with emphasis on effective health supervision of school children, principles and practices of health teaching in the various grades, and interrelation of this teaching with that of other subjects in the curriculum. Prerequisites: PEW 342 and 343, or consent of instructor.

516 Issues in Health Education 1-4 hrs.
Issues vary or occasionally repeat depending on the timeliness of the issue. Following are currently recommended themes: (a) Sex Education, (b) Smoking Education, (c) Drugs and Narcotics, (d) Safety Education, (e) Environmental Pollution, (f) Health Education and the Culturally deprived, (g) Mental Health, (h) Venereal Disease. Student may register for 516 more than once but may not repeat the same issue.

530 Studies in Health, Physical Education and Recreation (HPER) 1-3 hrs.
In depth examination of selected topics in HPER. Format can include clinics, workshops, seminars, travel, and/or mini-courses; and provide opportunity to acquire skills and teaching techniques. Outstanding state, national, and international authorities may be involved when feasible.

545 Philosophies of Physical Education 2 hrs.
A study of the ideas and concepts of various philosophical schools as they apply to physical education.

560 Administration of Physical Education 2 hrs.
For administrative officers, as well as for teachers and directors of physical education. Includes a study of representative programs of physical education and a discussion of standards for evaluating such programs.

561 Principles and Problems of Coaching 2 hrs.
Role of athletics in education is explored. Problems in directing an athletic program, such as ethics, eligibility, finance, liability, transportation, safety, facilities, and equipment are discussed.

562 Administration and Organization of Physical Education 2 hrs.
Discusses administrative procedures and problems connected with physical education programs, including scheduling, facilities, personnel problems, and public relations.

572 Recreation for the Aging 2 hrs.
An overview of aging especially as it relates to leisure pursuits and organized recreation.
575 Analysis of Movement in Sport 2 hrs.
The study of movement of muscles and the application of kinesiology to physical activity.

580 Prevention and Treatment of Sports Injuries 3 hrs.
Survey of sport medicine with emphasis on injury prevention, diagnosis, and management. An in-depth study is made of specific injuries occurring frequently to sports participants. Two hours lecture and two hours lab per week. Prerequisites: PEM 280, BIOL 210 and 219, or consent of graduate adviser.

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 and 219.

598 Readings in Health, Physical Education, and Recreation 1-4 hrs.
Advanced students with good academic records may elect to pursue independently a program of readings in areas of special interest. Prerequisite: Approval of department head.

Open to Graduate Students Only

630 Advanced Coaching 1-2 hrs.
Problems in the coaching of fundamentals, organization, rules, regulations, strategy, techniques of selected sports in public schools and colleges. Actual participation in activities where possible. Either coaching experience or completion of an undergraduate major or minor in the field of physical education is a prerequisite. Each course carries separate credit, although all are listed under 630.

a. Archery — Purchase and care of equipment, preparation for camp and school instruction, conditioning exercises, tournament organization.
b. Baseball — Public relations, practice organization, conditioning techniques and game preparations.
c. Basketball — Practice organization, defensive and offensive strategy, scouting techniques.
d. Football — Organization of practices, defensive and offensive strategy, scouting techniques.
e. Golf — Meets, tournaments, purchase and care of equipment.
f. Gymnastics — Cinematic analysis and spotting of advanced skills, judging of meets.
g. Swimming — Conduct of meets, pool programming, sanitation and operation, beach and camp programs.
h. Tennis — Training and conditioning, drills for indoor instruction, and officiating techniques.
i. Track — Training and conditioning for individual events, planning and conduct of meets.
j. Wrestling — Administration of dual meets and tournaments, relations with community and school personnel, introduction to collegiate and olympic moves and counters.
631 Advanced Treatment of Athletic Injuries  
The prevention, etiology, symptoms, pathology, and prognosis of those injuries occurring most frequently will be studied. Treatment techniques and rehabilitation procedures will be demonstrated. Medical specialists will lecture in their special areas related to athletic injuries.

640 Rhythms in Elementary Education  
A study of the rhythmic movement needs of the elementary school child, including: suggested methods of teaching through which children are stimulated to create their own responses in rhythmic play; folk and social dancing as outgrowths of movement fundamentals; and teaching examples, sample less plans, and up-to-date reference sources. Lecture and activity periods.

641 Physical Education for the Elementary Teacher  
A study of the developmental needs of the child in terms of physical activity: the role of physical education in childhood education; the responsibility of the classroom teacher in this area; demonstrations and practice in teaching activities.

650 Evaluation in Health, Physical Education, and Recreation  
Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests.

651 Research Procedures in Health, Physical Education, and Recreation  
Introductory principles of scientific inquiry, research methods applicable to these fields, evaluation of published research, and procedures for developing a research design.

652 Historical and Philosophical Foundations of Physical Education  
Designed to examine the role of physical education in ancient and modern times. Stress is given to significant concepts, events, and people which have influenced this discipline. Special attention will be paid to developments resulting from the work of international professional organizations interested in HPER.

661 Problems and Trends in Health, Physical Education, and Recreation  
Deals with modern trends, and with instructional and supervisory problems involved in conducting an effective program of physical education. Critical appraisal of present practices.

662 Curriculum Buildings in Health, Physical Education, and Recreation  
A course in the development of a practical, progressive physical educational program for the elementary and secondary schools. A review of children's characteristics, particularly those concerned with physical education will be used as a basis for thorough analysis of the development of fundamental and basic skills at the various age levels.

663 Supervision in Health, Physical Education, and Recreation  
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 the situations. Discussions of the supervisory responsibility and function in city, county, and state school systems.
670 Community Recreation  
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  
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  
Best methods and materials for the teaching and organization of recreation activities. Activities used in recreation will be presented. Opportunities for organization and actual participation and leadership will be given. This course is open to all graduate students.

680 Advanced Studies in Health, Physical Education, or Recreation (HPER)  
Areas of study.

a. Business Procedures and Public Relations  
b. Comparative Physical Education  
c. Planning Facilities for Health, Physical Education and Recreation  
d. Outdoor Education and Recreation  
e. Lifetime Sports  
f. Physical Education for Exceptional Children  
g. Recreation for Exceptional Children  
h. History and Philosophy  
i. Sport and Society  
j. International Physical Education  
Open for Graduate Students Only — Please refer to The Graduate College section for course descriptions

700 Master's Thesis  
6 hrs.

710 Independent Research  
2-6 hrs.

712 Professional Field Experience  
2-12 hrs.

Special Education (SPED)
Eisenbach, Head; Professors Sellin, Wirtz; Associate Professors Ashbaugh, Hannaford, Lawrence, Nicolaou; Assistant Professors Henderson, Howell, Riegel

Open to Upperclassmen and Graduate Students

502 Educational Provisions for the Learning Disabled  
3 hrs.

This course is specifically designed for teachers who are interested in identifying and instructing learning disabled children and youth in a regular classroom setting. Emphasis will be placed on (1) identifying the exceptional pupil; (2) developing an educational profile which reveals the learner's strength and weak-
ness; (3) indentifying and describing methods and materials utilized in teaching the learning disabled individual. Open to all students except majors in Special Education curricula. Prerequisite: Consent of department.

512 Workshop in Special Education 2-4 hrs.
Designed for teachers, counselors, psychologists, social workers and others interested in studying selected aspects of special education at appropriate locations, such as state hospitals and special schools. A variety of instructional experiences are provided, including conferences. Credit for this course is not applicable toward a graduate degree in Special Education.

528-29 Interdisciplinary Education and Rehabilitation Techniques 4 hrs. (2 per. sem.)
This course is intended to develop a thorough understanding of the roles of the various disciplines involved in the diagnosis, education, and rehabilitation to exceptional children and youth. Lectures, taped and filmed interviews, and live demonstrations are utilized.

530 Education of Exceptional Children 3 hrs.
This course is primarily concerned with children and youth who are visually, 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 Special Education 530 and 531 concurrently. Admission to this offering will be determined by the number of placement opportunities available.

A course especially intended for teachers of mentally handicapped children. Also recommended for school counselors, psychologists, social workers and other auxiliary personnel. Course objectives include an understanding of the causes, diagnoses, classification and interpretation of mental deficits. Prerequisite: SPED 530 or equivalent and 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 children in his curricular area. Diagnostic findings will be translated into individualized educational prescriptions. For majors enrolled in Special Education curricula and to be taken concurrently with Special Education 534. Prerequisites: SPED 530, 531 and consent of department.

534 Curricular and Instructional Provisions for Exceptional Children and Youth 4 hrs.
Critical issues in determining curricular expectations for atypical individuals will be analyzed. Essentials in ascertaining appropriate behavior for these pupils will be combined with identifying and evaluating a variety of educational methods.
and materials. Students enrolled in this course will be expected to delineate behavioral goals for those evaluated in Special Education 533 and translate diagnostic data into meaningful educational programs. Prerequisites: SPED 530, 531 and concurrent enrollment in 533.

536 Contemporary Issues in Special Education: Honors Seminar 1 hr.
A course especially designed for selected undergraduate majors in special education curricula. Emphasis will be placed on theoretical discussion of social, philosophical, economic and educational problems related to the education of exceptional children and youth. Prerequisites: SPED 530 and 531, and faculty approval of the applicant.

543 Nature and Needs of Crippled and Homebound Children 4 hrs.
Study of educational, psychological, and therapeutic needs of crippled children and the role of allied disciplines in meeting these needs. Prerequisite: SPED 530 or equivalent, and consent of the department.

588 Behavior Disorders in School-Aged Children 3 hrs.
Deals with the psychoeducational aspects of disturbed or disturbing behavior as related to the school program. Issues and problems associated with normal development, concepts of diagnosis, and the incidence of maladjustment will be reviewed. The characteristics, causes, diagnosis, and treatment of the effects of such conditions in children as psycho-neurosis, mental subnormality, juvenile delinquency, psychosis, learning disability, and social disadvantage will be examined in terms of their educational implications. Therapeutic, environmental, and classroom interventions will be presented and strategies for prevention will be analyzed. Prerequisites: SPED 530 or equivalent and consent of department.

589 Programs and Intervention Strategies for the Socially and Emotionally Maladjusted 4 hrs.
This course, open only to majors in Special Education curricula, will emphasize techniques and procedures applicable to socially-emotionally maladjusted children in various special or public school settings. Current theories, contemporary programs and trends in behavioral change and management will be reviewed and discussed. Prerequisites: SPED 530, 531, 588 and consent of department.

Open to Graduate Students Only

620 Educational Appraisal of the Exceptional Child 2 hrs.
This course offers experienced special classroom teachers and other special education personnel an opportunity to analyze and utilize formal and informal techniques of evaluating exceptional children and youth. Major importance is placed on translating diagnostic data into realistic curricular expectations. Emphasis is also placed on developing interdisciplinary relationships in the evaluation and placement of exceptional children. Prerequisites: Consent of department.

621 Curriculum Development for Exceptional Children and Youth 2 hrs.
This course is designed to provide experience in construction, implementation and evaluation of group and individual behavioral expectations. Critical issues in curriculum development for the exceptional child will be examined and discussed. Prerequisite: Consent of department.
630 Clinical Study of Exceptional Children 2 hrs.
This course is intended to illustrate methods of diagnosing and treating problems of exceptional children. Students make observations and interpretations of the children and carry on remedial work with them. The contributions of other professions will be incorporated. Prerequisite: Consent of department.

633 Education of Gifted and Talented Children and Youth 2 hrs.
This course is designed to develop a student's understandings of the appreciation for the abilities, interests, talents, and problems of gifted children and youth. Attention will be given to methods and criteria used in identifying gifted, talented and creative individuals. Through the use of available research data, students will be required to complete a critical evaluation of educational provisions including segregation, acceleration, and enrichment. Personal, social and cultural factors which directly or indirectly influence the growth and development of these individuals will be considered. Prerequisite: Consent of department.

634 Advanced Theory and Practice in Learning Disabilities 4 hrs.
To identify advanced knowledge of the history, theory, and practices related to the education of learning disabled children. An in-depth study will be made of the relationships between learning process deficits and academic underachievement. Alternative strategies for teaching and prevention will be explored. Prerequisite: SPED 533, 534 and consent of the department.

635 Counseling Parents of Exceptional Children 3 hrs.
This course explores the dynamics of parental reactions to their handicapped children. Techniques of dealing with stress situations in the home, in the school, and in the community are developed. The students are given opportunities of working with parents of exceptional children and helping them in coping with the problems they face. Prerequisite: Ten hours in Special Education and consent of department.

636 Topical Seminar in Special Education 2 hrs.
To provide a survey or in-depth coverage of topics directly related to the education of exceptional children and youth. May be repeated for credit. Prerequisite: Consent of the department.

637 Research Practicum in Special Education 2 hrs.
Students enrolled in this course will be expected to implement a research proposal (previously designed in TEED 601) related to the education of exceptional children, conduct an investigation, collect, analyze and interpret data, and prepare a comprehensive written report of the study. Prerequisite: TEED 601 and consent of the department.

638 The Application of Behavior Theory to Classroom Teaching 3 hrs.
Emphasizes the implications of the principles of behavior theory for classroom teaching techniques, particularly with exceptional children. Introduction to general and specific methods for generating, strengthening and maintaining desirable behavior, and methods for weakening undesirable behavior. Both academic skills and non-academic behaviors will be included. Normal and abnormal behaviors will be discussed. Direct experiences in modifying the behavior of a school-age child will be arranged. Prerequisite: Consent of the department.
640 Organization and Administration of Special Classes and Services for Exceptional Children 2 hrs.
Principles and practices of organization and administration of special programs at state, county, and local levels will be considered, including legal aspects of state aid. Prerequisite: Consent of the department.

641 Supervision of Special Education Programs and Services 3 hrs.
This course is designed to provide the experienced special educator with specific knowledges and skills necessary for supervising personnel who are providing direct services to exceptional children. 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.

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 the 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 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 the 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 6 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' performance. Competence will be demonstrated in academic advising, supervising undergraduate students enrolled in practicum, and directing students engaged in independent study. Prerequisite: Consent of the 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.

Teacher Education (TEED)

Distinguished University Professor Travers; Professors Adams, Ansel, Bosco, Cain, Chiara, Curl, Erickson, Govatos, Griggs, Heinig, Inselberg, Johnson, Kanzler, Lambe, Lloyd, McGinnis, Middleton, Moore, Stroud, Swickard; Associate Professors Bladt, Burns, Chapel, Dickie, Fisk, Harring, Heger, Kilty, Miller, Mortimore, Smidchens, C. Smith, Stewart, Taylor, Walker; Assistant Professors Armstrong, Bailey, Brashear, Brenton, Cordier, Cowden, Crowell, Dube, Hagberg, Schreiber, Sendo, D. Smith, VanderMeulen, Watson

CORE COURSES

Each graduate student in Education, regardless of specialization, is expected to show competence in at least three professional areas: research, curriculum, and foundations. These are considered minimal requirements for career positions as teachers, administrators, counseling personnel, or curriculum specialists. Such competence will normally be provided through nine semester hours of course work in the following courses: TEED 601, 602, 603, and 604. In certain curricula, such as Counseling and Secondary Teaching, modifications of this requirement are permitted to provide for needed flexibility.

Open to Graduate Students Only

601 Introduction to Research in Education 3 hrs.

This course is intended to develop an understanding of the major types of educational research and application of research findings to educational problems. Emphasis is placed upon familiarity with sources of research, competence in the interpretation of research reports and abstracts, understanding of the techniques of conducting discriminating search of the literature, and the development of skills in research writing.

602 School Curriculum 3 hrs.

This course, designed for teachers and administrators at all levels, attempts to analyze the decision factors stemming from societal forces, psychological, cultural, and developmental needs and perceptions of learners, and internal structures of the disciplines as guidelines for a curriculum emerging from and serving a democratic society.

603 Social and Philosophical Foundations 3 hrs.

A cultural approach to the development of American educational policy and practice in its broad social setting. Consideration is given to historical, economic, social and philosophical factors which influence educational thought and practice. The need for historical perspective and sound analysis of conflicting points of view is emphasized in the interpretation of current educational issues and the alternative solutions of present educational problems.
604 Psychological Foundations of Education 3 hrs.
An overview of the psychological forces that influence the learner in his educational setting; with special emphasis on the nature and significance of human variability, development of self, measurement and evaluation, and a consideration and application of principles of learning to classroom situations.

Open to Upperclassmen and Graduate Students

502 Curriculum Workshop 1-6 hrs.
Opportunity provided for teachers, supervisors and administrators in selected school systems to develop programs of curriculum improvement. This may include short-term offerings to resolve a particular curricular problem, as well as long-range curriculum studies. A wide variety of resources is used for instructional purposes, including several specialists, library and laboratory facilities, field trips, audio-visual materials and the like. Each offering of 502, Curriculum Workshop, will be given an appropriate subtitle, which will be listed on the student's official transcript. Students may earn up to three hours of credit for any given subtitle. No more than six hours of 502 may be applied toward a master's degree.

506 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 communications with adults, as well as a practical exercise in the designing of learning experience for adults. Extensive use will be made of audio-visual media, experts in the field, and field observation in adult learning activities. The course should be helpful to administrators in planning in-service programs for their own staff.

507 Teaching of Social Studies in the Elementary Schools 3 hrs.
This course is designed to help teachers understand the role of the social studies in the elementary school, gain insight into important considerations in the selection of content, and discover how to guide and assess the learning of children in this field. Planning social studies experiences and ways of working with children in a classroom setting will be emphasized.

508 Parent Education 2 hrs.
Places major emphasis on home problems which have educational implications for the child. Parent-teacher relationships, council programs, and cooperative efforts for improvement of education in home and in school are studied.

509 Social Studies for Culturally Different Children 3 hrs.
Designed to help elementary teachers understand the role of social studies in a pluralistic society and the factors which tend to inhibit cooperation and communication across social class and racial barriers. Planning social studies experiences and ways of working with culturally different children in a classroom situation will be emphasized. Registration limited only to people in Career Opportunities Program in Grand Rapids.

510 The Elementary Curriculum 2 hrs.
A consideration of content and procedures to adapt experiences of pupils in elementary schools to modern conditions and to child needs and interests. Individual or committee reports concerning the improvement of various aspects of the elementary school curriculum will be prepared.
511 Developmental Reading Theory and Application 3 hrs.

Emphasizes the application of reading theory in the teaching of reading skills to elementary and secondary students. Intensive study of the theory and practice of individualized reading, language experience approaches, and basal reading materials will be made. Will focus on the actual use of materials with pupils to provide practical experiences in teaching on an individual and small groups basis. Efficiency of reading procedures will be studied through actual use with pupils. Prerequisite: TEED 312 or 322 and permission of instructor.

514 Nursery-Kindergarten Education 2 hrs.

This course will acquaint the students with the history and presentday status of nursery school and kindergarten education. Consideration will be given to the organization equipment, curriculum and approved teaching procedures.

515 Seminar in Teaching of Social Studies 3 hrs.

Consists of two parts: perspectives and implementation. Under perspectives, a staff of social scientists will share with the participants their thinking concerning significant ideas and concepts from their disciplines that further amplify topics covered. Opportunities will be provided for the participants to implement social studies methods and skills in actual classroom and other situations. Registration limited only to people in Career Opportunities Program in Grand Rapids.

520 Implications of Piaget's Research for Curriculum Design 3 hrs.

Provides the student with an understanding of the structure of the intellect developed by Piaget and examines the implications of this structure for the design of the curriculum. Some practical work will be combined with a study of the research on which piaget has built his theory of intellectual development.

525 Rural Life 2 hrs.

Critical study of recent books in rural social life. Consideration is given to individual problems related to social aspects of community life. Special problems are selected for study by each student. Field work is encouraged. Prerequisite: TEED 220.

527 Instructional Planning in Accountability Context 3 hrs.

The purpose of the course is to assist the student in developing an understanding of models of accountability in education; in writing educational goals and performance objectives; in using various assessment procedures to determine the needs of the learner and the extent to which objectives have been achieved; and in determining appropriateness of instructional procedures for specified educational goals.

530 Introduction to Career Education 3 hrs.

This course is designed to acquaint teachers with the concepts of career education. Course work is centered on ways and means to incorporate career education into the existing curriculum structure at all levels of instruction.

535 Introduction to Teaching the Disadvantaged 3 hrs.

Designed for teachers and administrators who are presently working with disadvantaged children and youth. Class meetings are centered around problems arising from practical situations, particularly with respect to affective factors of environment and their relation to teaching and learning. Extensive use is made of consultants from social, governmental and educational agencies working with the disadvantaged.
542 Administration and Methods of Driver Education  
2 hrs.

History, philosophy, and psychology of driver education. Emphasis on organization and administration of high school Driver Education programs. Laboratory work in dual control cars and driving range programs. Prerequisite: TEED 442.

544 Psychology of Driver Education  
2 hrs.

Psychological and perceptual aspects of the driver and traffic safety. The role of the teacher in influencing driver behavior. Research in traffic safety. Prerequisite: TEED 442.

548 Audiovisual Media I  
3 hrs.

An introduction to audiovisual media as effective means for achieving educational objectives in presentational, 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 30 students.

549 Audiovisual Media II  
3 hrs.

A continuation of TEED 548, in which teachers and media specialists consolidate basic audiovisual skills and deal in depth with more advanced processes and techniques. Laboratory experiences may include production of complex transparencies, photographic slides, filmstrips, and prints, super 8 films, audio and video tapes, duplicated materials, and more sophisticated charts, posters, and displays. A systematic production planning process is emphasized, with consideration given to evaluating effectiveness of media and to requirements for operating a school building level media center. In addition to texts, each student should expect to spend $15 or more for supplies and should have the use of a versatile camera. Limited to 15 students. Prerequisite: TEED 548 or equivalent experience.

550 Photography Workshop  
1-3 hrs.

Intended to sharpen visual perception while improving technical skills, this laboratory course emphasizes photography as a creative and expressive medium of visual communication. Each student is expected to produce new photographs each week and to submit one or more mounted enlargements for group critique at each class meeting. Each student must have the use of appropriate equipment and should expect to spend $25 or more for supplies. Although no prerequisite is required, it is helpful to have had some experience with basic darkroom processes. May be repeated up to a total of six credits. Limited to fifteen students.

552 Comparative Education  
3 hrs.

This course is intended to provide students with an introduction to the field of comparative/cross-cultural education. The 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

The initial course required of all students in the MA programs for teaching the disadvantaged. Designed to develop awareness of family situations, community conditions, behavior, value systems, and characteristics of the disadvantaged, as well as to develop positive attitudes toward these children and their problems. Consists of readings, lecture-discussions, and field experiences with the disadvantaged, including home visits, visits to social and governmental agencies, and school experiences including supervised teaching. Generous use is made of consultants from all agencies dealing with the problems of the disadvantaged.

586 Clinical Studies in Reading

This course is intended to provide the basic information needed in the examination of persons with reading disorders. Interviewing techniques and examination procedures will be the basic content of the course. Emphasis will be placed on the physical, psychological and sociological factors affecting reading performance.

587 Educational Therapy in Reading

The psychological, sociological and physiological factors affecting children's reading ability, together with laboratory application of such knowledge in the prevention, diagnosis and treatment of reading problems.

588 Evaluation in Education

Designed to develop skills, techniques, attitudes and understandings involved in the measurement and evaluation of individual learning and development as well as in the appraisal of the total school program. Emphasis is placed on the construction, use and interpretation of formal and informal evaluation devices, and upon the development of a philosophy of evaluation as an integral part of learning.

597 Reading and Related Language Experiences

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

Designed for highly qualified students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Prerequisite: Written consent of departmental adviser and instructor.

Open to Graduate Students Only

608 Interdisciplinary Seminar

This seminar is taught by a team of faculty members chosen from such areas as sociology, economics, psychology, philosophy and education. It is designed to provide breadth and depth in understanding. May be taken more than once.

610 Guiding Child Development in the Elementary School

Designed to help nursery, kindergarten and elementary school teachers gain an understanding of the manner in which skills, information, attitudes and behavior patterns are acquired and modified. The contributions of each curricular area, such as language arts, arithmetic, science, social studies, health, etc., are stressed with emphasis on suitability of experience for different stages of growth, instructional practices and appropriate procedures of evaluation.
615 Seminar in the Teaching of Reading 2 hrs.

Designed to acquaint teachers, reading specialists and administrators with the current literature, research, methods and materials used in teaching children how to read. Special emphasis is placed on reading in relation to other aspects of language and on reading in the content fields. Prerequisite: TEED 312 or equivalent.

621 The Secondary School Curriculum 2 hrs.

Covers modern practices and recent emphasis and trends in subject areas of the secondary school curriculum.

622 Middle-Junior High School Curriculum 3 hrs.

An analysis of selected topics in middle and junior high school development, trends and purposes. The focus of the course will be substantive as well as theoretical and methodological in areas of psychological and philosophical foundations; curriculum patterns; student activities programs; administrative, guidance and evaluation procedures. Special attention is given to the objectives and content of general education and the integration of learning in an open class environment.

641 Instructional Development 3 hrs.

Intended for media specialists and experienced teachers, this course employs an accountability model for application of media research and technology to actual courses and units of instruction. Students follow a systematic instructional development procedure from task analysis to evaluation, working together with their own students or as assistant and consultant to another teacher. Prerequisite: TEED 548 or equivalent experience.

642 Photographic Communication 3 hrs.

Explores uses of photography in the communication of ideas, considering techniques of composition, lighting, equipment operation and basic photographic processes as means toward achieving an effective visual statement. Following preliminary assignments, each student plans and produces a picture story or photo essay suitable for publication and a synchronized sound/slide presentation for a specified audience. Considerable laboratory time is required outside of class. In addition to text materials, each student must have the use of a high quality, versatile camera and should expect to spend $25 or more for supplies. Limited to fifteen students. Prerequisite: TEED 549 or 550 or equivalent experience.

643 Practicum in Clinical Studies in Reading 2-4 hrs.

A laboratory course providing experiences in integrating facts provided in the child’s history with facts resulting from the administration of objective measures. Practice is given in identifying relevant data and explaining causal factors and their interrelationship. Experience is provided in the diagnosis of reading problems in the Reading Center and Clinic. Prerequisites: TEED 586 and 587.

645 Advanced Production of Audiovisual Media 3 hrs.

A laboratory course in which principles of graphic communication are applied to the design and production of instructional media. Provides an opportunity for the graduate student to pursue selected techniques in depth and to become acquainted with processes needed by the educational media production specialist. This course may be repeated for credit as different topics are offered. In addition to text materials, each student should expect to spend $25 or more for supplies. Limited to fifteen students. Prerequisites: TEED 548 and 549 or equivalent experience.
646 Studies in Educational Technology

Explores theory and innovative developments in educational technology and suggests practical instructional applications. Such topics as the following may be considered: Design and Analysis of Individualized Instruction, Instructional Simulation and Gaming, Computer Applications in Instruction, and Diffusion and Adoption of Innovative Practices in Education. This course may be repeated for credit as different topics are offered. Prerequisite: TEED 548 or equivalent experience.

647 Administration of Audiovisual Media Programs

Considers audiovisual aspects of a unified instructional media program, including allocation and management of space, time, budget and personnel; selecting, organizing, distributing and maintaining materials and equipment; providing in-service education in audiovisual methods for teachers and interpreting the media program to administrators, staff, students, and the community. Prerequisite: TEED 548 or equivalent experience.

648 Instructional Media Seminar

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 re-organization and improvement of certain phases of operation in an on-going center. Limited to fifteen students. Prerequisite: TEED 548 and 647 or equivalent experience.

649 Problems of College and Adult Reading

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

This course is intended for students who are preparing to teach at the senior college or the community college level. Its focal point is an understanding of the capabilities, behaviors, attitudes and motivations of the college student. Among the topics to be considered will be academic adjustment, separation from home and family, use or abuse of newly-acquired autonomy, economic stability, campus social life and interpersonal relations as they affect academic achievement.

651 Philosophy of Education

For graduate students and teachers of experience. Analyzes basic ideas, concepts and value-systems affecting educational practices; stresses a comparison of philosophical schools, historical and contemporary.

653 Practicum in Reading Therapy

An instructional internship for working with individual pupils who have problems in reading and related areas. The course provides, through the service of the Reading Center and Clinic, supervised therapy experiences with a variety of reading problems. Emphasis will be placed upon the study, application and evaluation of therapeutic procedures. Prerequisites: TEED 586 and 587.

654 Practicum in Reading Supervision

Principles and practices of organization and administration of reading programs for elementary, secondary, college, and adult students. Deals with the role of the reading consultant and the problems associated with providing effective reading
instruction. Includes participation in classrooms and conferences with teachers concerning instructional goals, materials and procedural approaches.

655 Seminar in Learning 2-3 hrs.
Open to selected graduate students with the consent of the instructor. Analyzes research in the field of learning, including affective factors, input and retention of information, and concept formation.

656 Organization and Administration of Reading Programs 2 hrs.
A study of the process and procedures which may be employed in organizing and administering reading programs at the elementary and secondary levels. Emphasis is placed on the examination of existing programs and practices with a view toward improving in-service education for all teachers.

659 Seminar: Methods and Techniques in Teaching the Disadvantaged 3 hrs.
This seminar deals with problems inherent in educational programs for underprivileged youth. Emphasis is placed on developing a depth of understanding and resolutions to such problems as: curriculum development, methodology, school organizational innovations and audiovisual adaptation of existing materials to the teaching of disadvantaged children. Students are encouraged to enroll for the 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.

687 Improvement of Reading in Secondary Schools 2 hrs.
Designed to aid teachers in developing their reading abilities and skills for their students at the junior and senior high school level. Emphasis is on aims, materials and procedures.

690 The Community College 2 hrs.
Studies the historical development of the junior and community college movement; the function of the community college in the total educational program; the divergent aims and curricular requirements of pre-professional, academic and pre-vocational courses; the guidance and counseling function; community services programs; and methods and materials of instruction at the college level.

698 Resolving Educational Problems in the Schools 1-6 hrs.
With variable topics and variable credit, this course is offered for in-service teachers, supervisors, and administrators who come together from one school system, or from more than one school system in the same geographical area, in order to solve school problems which they are encountering in the field. Problem-solving techniques, theoretical and evidential support for solutions, and workshops will be applied to actual school or classroom situations. The topic of the course will be stated in the schedule each time the course is offered. School systems wishing to enroll a team of teachers, supervisors, and administrators to solve particular problems should apply to the Chairman of the Department. Student may repeat this course, providing topics vary. No more than six hours of 698 may be applied toward a graduate degree.

699 (GRAD 715) Seminar in College Teaching 2 or 4 hrs.
Designed for students who are interested in preparation for college teaching. The student is expected to enroll for four credit hours, work with a faculty member in his major department or unit in a classroom situation for a semester, and attend
eight scheduled discussions arranged for all students in the seminar. These discussions will emphasize important topics related to college teaching. Exceptions may be made for the student who already has college teaching experience. In such cases, the student should enroll for two credit hours and attend the seminar discussion sessions only. Permission of instructor on “C” card is required.

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

700 Master’s Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.
College of Fine Arts

ROBERT W. HOLMES,
Dean

Graduate Offerings
Art
Dance
Music
Art (ART)

Meyer, Head; Professors Engstrom, Hansen, Hefner, Robbert; Associate Professors Argyropoulos, Carney, DeLuca, Frattallone, Gammon, Harrison, Henderson, Johnston, Keaveny, Lowder, Metheany, Moulton, Rhodes, Rizzolo; Assistant Professors Dull, Dumlae, King, Mergen, Mohr

Open to Upperclassmen and Graduate Students

510 Advanced Drawing 3 hrs.
Drawing as the study of form and as a conclusive aesthetic statement. Prerequisite: ART 410 or equivalent experience. Repeatable for credit.

520 Independent Study in Art History 2-3 hrs.
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: ART 220, 221, and a 500-level course in the area of interest; permission of instructor. Repeatable for credit.

521 Topics in Art History: Variable Topics 3 hrs.
Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Prerequisites: ART 220 and 221 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. Prerequisites: Junior Art major.

529 Advanced Ceramics 3 hrs.
Advanced work in ceramics including glaze calculation. Prerequisite: ART 430 or equivalent experience.

530 Advanced Ceramics 1-6 hrs.
Advanced work in Ceramics on an independent basis. Prerequisite: ART 529 or equivalent experience. Repeatable for credit.

531 Sculpture 3 hrs.
Advanced work in sculpture. Emphasis on bronze and aluminum casting and related techniques. Prerequisites: ART 340, 431 or equivalent experience. Repeatable for credit.

534 Textiles 3 hrs.
Advanced work in textile design. Prerequisites: ART 434 or equivalent experience. Repeatable for credit.

535 Multi-media Art 3 hrs.
Various forms of art that deviate from the conventional media, such as light, kinetic, and performance art. Prerequisite: ART 435 or permission of instructor. Repeatable for credit.
538 Jewelry 3 hrs.
Advanced work in jewelry processes. Prerequisite: ART 438 or equivalent experience. Repeatable for credit.

539 Metalsmithing 3 hrs.
Advanced work in metalsmithing. Prerequisite: ART 439 or equivalent experience. Repeatable for credit.

540 Painting IV 3 hrs.
Advanced painting. Prerequisite: ART 410 (or concurrently), 440 or equivalent experience. Repeatable for credit.

541 Printmaking 3 hrs.
Advanced work in printmaking. Prerequisite: ART 410 (or concurrently), 441 or equivalent experience. Repeatable for credit.

542 Watercolor 3 hrs.
Continuation of advanced water color techniques with emphasis on experimentation. Prerequisites: ART 240, 442 or equivalent experience. Repeatable for credit.

545 Graphic Design 3 hrs.
Advanced work in graphic design. Prerequisite: ART 445 or equivalent experience. Repeatable for credit.

548 Photography IV 3 hrs.
Professional development through research in advanced projects. Prerequisite: ART 448 or equivalent experience. Repeatable for credit.

552 Preparation for Art Teaching 3 hrs.
A course designed to investigate: the current problems and issues on the social scene which effect teaching and learning in the visual arts at all levels of the public school; the creative person, product, process, and press (environment); the phenomena of perceptual learning; the actual construction of an operant art curriculum for the elementary, middle, and high school programs. Emphasis is placed upon developing professional viability. Prerequisites: ART 452, and art major status.

553 Independent Studies in Art Education 1-6 hrs.
An arranged elective course which would permit the student to investigate, in depth, research, a problem, a project, or trends in art education. Prerequisite: Permission of instructor.

560 (650) Arts Education for the Elementary Teacher 3 hrs.
A studio course designed for the elementary classroom teacher to provide experiences in qualitative elementary arts and integrated arts programing in the elementary public school. Repeatable for credit.

581 History of Ancient Art 3 hrs.
Selected topics from the art and architecture of ancient Egypt, the ancient Near East, the Aegean proto-Greek, Classical and Hellenistic Greece, Etruria and Rome to the Early Christian period. Prerequisite: ART 220 for Art majors and minors; none for other students.
583 History of Medieval Art

Discussion of art and architecture from the decline of the Roman Empire through the Gothic Period (3rd-13th cent.) Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

585 History of Renaissance Art

The development of art through the early Renaissance to the late Renaissance and Mannerism. Some of the major artists discussed are: Giotto, Donatello, da Vinci, Michelangelo, Titan, Van Eyck, Brueghel and Dürer. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

586 History of Baroque Art

Art of the late sixteenth, seventeenth and early eighteenth centuries. Major artists and architects discussed are: Caravaggio, the Carracci, Rembrandt, Rubens, Poussin, Velasquez, Bernini, Borromini and Neumann. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

588 History of 19th Century Art

Major developments, such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism, are discussed. Key figures whose works lie at the roots of modern art are considered in relationship to their times. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

589 History of 20th Century Art

Major developments, including Fauvism, Cubism, Non-Objective art, Expressionism, Surrealism, Abstract Expressionism, and recent art movements, are discussed. Emphasis is placed upon the roots of contemporary trends and the contributions of individuals to new modes of presentation. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

590 History of Prints

Major developments in printmaking, including origins of woodcut and engraving, Renaissance and baroque master etchers and engravers (Dürer and Rembrandt). Lithography in the nineteenth century (Delacroix, Daumier, Toulouse-Lautrec). Twentieth century printmaking. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

593 History of American Art

Art in the United States from the Colonial Period to the present. Topics discussed are: Colonial portraiture and Copley; the evolution of 19th and 20th century painting and sculpture, with emphasis on the work of Stuart, Cole, Bingham, Homer, Eakins, Ryder, Saint-Gaudens, Zorach, Marin, Pollock and recent developments. Prerequisites: ART 220 and 221 for Art majors and minors; none for other students.

594 History of Afro-American Art

Painting and sculpture in the United States by Americans of African ancestry from the Colonial period to the present. Includes examination of the African art background and the continuation of African art traditions and skills in America. Prerequisites: ART 220 and 221 for art majors, none for other students; Junior standing required.
596 A Survey of World Architecture 3 hrs.
A general introduction to the development of architectural styles including European, Asian, and Pre-Columbian. Considers the evolution of styles and their cross-cultural relationships.

597 History of Modern Architecture 3 hrs.
Major developments in architecture since c. 1750 with emphasis on late 19th and 20th century developments in domestic and commercial architecture and city planning in the West and in Asia. Especial consideration given the works and influences of Wright, Le Corbusier, and Mies van der Rohe.

Open to Graduate Students Only

610 Advanced Drawing 1-6 hrs.
Graduate level work in drawing. Prerequisite: ART 510. Repeatable for credit.

613 Graduating Presentation 2 hrs.
Preparation and presentation of graduating exhibition, portfolio, and oral examination or written thesis, with the assistance of the student's major adviser. Evaluated by a departmental reviewing committee. Prerequisite: Last year of graduate study.

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 Metalsmithing 1-6 hrs.
Graduate level work in hand-hammered metal. Prerequisite: ART 539. Repeatable for credit.

640 Advanced Painting 1-6 hrs.
Graduate level work in painting. Prerequisite: ART 540. Repeatable for credit.

641 Advanced Printmaking 1-6 hrs.
Graduate level work in printmaking. Prerequisite: ART 541. Repeatable for credit.

642 Advanced Watercolor 1-6 hrs.
Graduate level work in watercolor. Prerequisite: ART 542. Repeatable for credit.

645 Advanced Graphic Design 1-6 hrs.
Graduate level work in graphic design. Prerequisite: ART 545. Repeatable for credit.

648 Advanced Photography 1-6 hrs.
Graduate level work in photography. Prerequisite: ART 548 or equivalent experience. Repeatable for credit.

655 Workshop in Art for Secondary Teachers 2 hrs.
A course designed to help the secondary teacher with no professional training in art or art education to better understand the child at this level and to help him in his creative mental growth through art activities.

656 Seminar in Elementary Art Education 1 hr.
A seminar oriented to the explicit needs and interest of the student enrolled. It will examine particular issues pertinent to the teaching of art in the elementary school.

657 Seminar in Secondary Art Education 1 hr.
A seminar oriented to the explicit needs and interests of the students enrolled. It will examine particular issues pertinent to the teaching of art in the secondary school.

658 Art Education Research 1-6 hrs.
To examine historical and contemporary philosophies in art education in order to familiarize the student with current methods of research in the field. Whenever appropriate, opportunity will be given students to do pilot research in an area of their own needs and interests. Repeatable for credit.

659 Advanced Art Education 3 hrs.
An examination of some of the unique aspects of teaching art in the public schools. New materials, special and general materials sources, bibliographic resources and related references are gathered and explored. Field trips will be developed to expose students to potential community resources in art, and discussions will examine current literature, trends and techniques in art education. (A lecture-lab).
660 Related Arts
A course that explores the art teacher’s role in contemporary and experimental procedures in the teaching of the arts in the public schools. Some factors to be examined are: team teaching, team learning and planning. Audio-visual/video support, the individual school situation and its personnel.

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

700 Master’s Thesis
6 hrs.

710 Independent Research
2-6 hrs.

Dance (DANC)
Hetherington, Chairman; Associate Professors Gamble, Stillwell; Assistant Professors Cornish, McCray

Open to Upperclassmen and Graduate Students

500 Dance History and Philosophy
The history of dance through the philosophies of man from primitive cultures to the contemporary concert dancer.

523 Advanced Contemporary Dance
The advanced study of contemporary dance technique designed for the dance student seeking the greatest proficiency and versatility in this dance form.

528 Musical Theatre Workshop
Designed for students from dance, music and theatre orientations who wish to learn about the concepts, methods, techniques, organizational and communicational approaches useful to creatively effective production of musical theatre. An understanding of the integration of dance, music and theatre elements is provided through lectures, discussions, demonstrations, and student-directed scenes from musical theatre pieces. Course is team taught by faculty members from the departments of Dance Music and Theatre area of Communication Arts and Sciences. Prerequisite: DANC 182 and 328 or permission of the instructor.

548 (PEW 586) Dance and the Related Arts
Related study of cross-sections of art discipline at various points in the historical development of man. Assumes prior knowledge of historical and philosophical development of at least one of the disciplines.

582 Advanced Choreography
A non-literal approach to design in dance through the study of varied use of time, space and force in solo and group choreography. Prerequisite: DANC 182 or permission of instructor.

588 Staged Productions
Study of the production aspects of dance and related types of performance situations. Aspects of management including budget, publicity, and programming as well as technical aspects of scenery, lighting, sound, costuming and make-up is considered.

265
598 Readings in Dance 1-3 hrs.

Graduate students may enroll in this course after consultation with graduate adviser.

599 Non-Reading Independent Study in Dance 1-3 hrs.

Graduate students may enroll in this course after consultation with graduate adviser.

Open to graduate Students Only

640 Rhythms in Elementary Education 2 hrs.

A study of the rhythmic movement needs of the elementary school child, including: suggested methods of teaching through which children are stimulated to create their own responses in rhythmic play; folk and social dancing as outgrowths of movement fundamentals; and teaching examples, sample lesson plans, and up-to-date reference sources. Lecture and activity periods.

680 Advanced Studies in Dance 1-3 hrs.

Consultation with graduate adviser.

Music (MUS)

Fink, Chairman; Professors Bullock, Butler, Carter, Faustman, Holmes, Kyser, Meretta, Sanders; Associate Professors Appel, Balkin, Bjerregaard, Brown, Fischbach, Hahnenberg, Hardie, Heim, Humiston, Ivey, Osborne, Parkes, Rappeport, Ricci, Ryan, Sheldon, Whaley, Work, Zastrow, Zupko; Assistant Professors Allgood, Boucher, Curtis-Smith

Open to Upperclassmen and Graduate Students

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. The class may be repeated for credit.

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. Required of Music History majors. Additional transcription, arranging, editing, and conducting of early music is required of Music History majors. Graduate students may count not more than two hours of this course for graduation. Membership by audition.
518 Improvisation
A course in the fundamentals of instrumental improvisation. Assignments will be made in such areas as improvisation in the early music tradition, improvisation on given melodic, harmonic, and/or rhythmic materials, as well as "free" improvisations. Prerequisite: MUS 161 or 165.

519 Vocal Chamber Ensemble
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
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
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
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
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
Topic to be announced. Selection will be made from the following or similar topics: Music in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated to an accumulation of not more than four credits.

543 Psychology of Music Education
Personal and social needs, motives, and goals in relation to music in education. The function of musical achievement and aptitude tests in music education. Psychological aspects of behavior pattern in musical organizations. Physical, social, and psychological factors involved in developmental music program.

544 Analysis and Evaluation of Music Education Materials
A study of the theoretical bases for, and practice in, analyzing and evaluating music for use in music education programs.

545 Music Theatre Productions
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.
562 Advanced Composition 2 hrs.
A study of twentieth century techniques in composition with original work in vocal and instrumental forms. Prerequisite: MUS 460 or 660.

563 Advanced Composition 2 hrs.
A continuation of MUS 562.

569 Jazz 2 hrs.
A comprehensive study of jazz as a musical art from both a theoretical and historical perspective. Special attention to the musical contribution of black Americans, outstanding jazz composers and performers. Study of the “blues,” jazz melodic and harmonic structures, arranging for jazz ensembles, the art of improvisation and rhythmic analysis. Prerequisite: 161 with a grade of “C” or better.

570 Introduction to Musicology 3 hrs.
History, purposes, scope of musicology; leading historians, past and present; modern methods of research, with special emphasis on primary sources and bibliography of the field.

571 Introduction to Musicology 3 hrs.
A continuation of MUS 570.

572 Baroque Music (1600-1750) 3 hrs.
A survey of the choral and instrumental music of the Baroque masters such as J. S. Bach and G. F. Handel. Special attention to the development of style from monody through harmonic polyphony. Prerequisite: MUS 270 and 271.

573 Classical Music (1750-1800) 2 hrs.
Examination of the chief works of Mozart and Haydn, with intensive study of symphonic form and the development of the classic opera. Prerequisites: MUS 270 and 271.

574 Romantic Music (1800-1910) 3 hrs.
Music of the important composers of the period beginning with Beethoven, along with the historical, cultural, and political background of the era. Special attention is given to the development of Nationalism. Prerequisites: MUS 270 and 271.

575 Musicology and Research 2 hrs.
Presentation of musicological material in formal writing as well as informal classroom lecture; specific research projects with emphasis on selection and qualitative judgment of materials used.

576 Musicology and Research 2 hrs.
A continuation of MUS 575.

577 Symphonic Literature 2 hrs.
A survey of music written for symphony orchestra during the Classic and Romantic periods.
578 Chamber Music Literature
A survey of chamber music literature of the Classic and Romantic periods.

579 Operatic Literature
A survey of opera from 1600 to the present.

580 Solo Literature: (topics) 2 hrs.
Solo literature for a specific medium (voice, piano, violin, etc.) will be studied from a theoretical, historical, and performance point of view. Topics to be announced. May be repeated for credit. Prerequisite: MUS 270-271.

581 Choral Music Literature 3 hrs.
A survey of choral music (mass, motet, anthem, cantata, oratorio) from the Renaissance through the Romantic period.

590 Studies in Pedagogy 1-4 hrs.
Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit.

593 Piano Technology 1 hr.
An introduction to piano technology in which various aspects of the technician's art are investigated. Important topics covered include mechanics of the musical scale, art of tuning in equal temperament, and construction of modern grand and upright pianos. The course is designed to give the student valuable insights into the field of piano technology in order that he might intelligently purchase and care for this instrument. Not intended to train tuners.

598 Readings in Music 1-4 hrs.
Graduate students may enroll in this course after consultation with the graduate adviser.

Open to Graduate Students Only

617 Opera Workshop 2 hrs.
A production experience in acting, singing, accompanying, and producing of musical theatre. The class is offered each semester and culminates in the performance of an opera or operatic scenes. Open to advanced singers, pianists, and persons interested in production techniques. Admission is by personal interview with the instructor.

Topics will be chosen from the following: Eighteenth Century, Nineteenth Century, Twentieth Century, and selected Chamber Literature. The course may be repeated for credit. Prerequisite: Admission to the Applied String curriculum or permission of the instructor.

640 Band Techniques and Organization 2 hrs.
641 Choral Techniques and Organization 2 hrs.

The study of choral activities in relation to organization, repertoire, style, diction, singing technique, balance, blend, tone quality, phrasing, rehearsal technique, and conducting.

642 Philosophy and History of Music Education 2 hrs.

Designed to acquaint the student with the development of music education in the United States and how this development is a reflection of a growing philosophy of music education.

650 Seminar in Music Education 2 hrs.

Each participant will be expected to develop a project which is of interest to him, but each project will be subject to group discussion, review, and analysis. The lectures and reading will deal with the entire field of music education.

658 Techniques of Research in Music Education 2 hrs.

Available research in music education will be analyzed as to method and technique. Outlines will be submitted for proposed studies involving the techniques thus discovered, and one will be developed.

659 The Teaching of Applied Music (on demand) 2 hrs.

Survey of teaching problems involved in music of various periods and styles. Critical analysis of performances in student's major performance medium, as well as other media, will be required. Pedagogical problems of teaching both secondary and university age level students will be considered.

660 Advanced Counterpoint 2 hrs.

Contrapuntal techniques of the 16th, 17th, 18th, 19th, and 20th centuries. Written assignments closely correlated with analysis of the contrapuntal styles of significant composers of the above eras.

661 Advanced Counterpoint 2 hrs.

A continuation of MUS 660.

662 Seminar in Composition 2 hrs.

An intense study of various compositional styles with emphasis on the techniques of the composers of the Renaissance, Baroque, Classical, Romantic and Contemporary areas. Assigned individual research and analysis. May be repeated for credit to a total of not more than 4 hours.

664 Form in Music 2 hrs.

A survey of the musical forms, large and small, used from the Baroque period to the present day. Analysis of both structure and texture of representative works of the various periods and styles.

665 Band Arranging 2 hrs.

Instruction in scoring for small wind instrument ensembles and the band. Opportunity will be provided to hear the results of each student's work.

666 The Teaching of Theory (on demand) 2 hrs.

Analysis of various techniques, philosophies, and materials used in teaching theory and their relative strengths and weaknesses. Application of what we know.
about the learning processes to theory and the practical application of theory to all musical study.

667 Advanced Orchestration
2 hrs.
Scoring project for full orchestra and chorus, solo and orchestra and full orchestra. Analysis of the orchestral techniques of important 20th-century composers. Projects employing the orchestral techniques of the avant-garde.

668 Advanced Orchestration
2 hrs.
A continuation of MUS 667.

670 Seminar in Musicology
1 hr.
Research projects from all areas of the history of music. Each student will present his findings both as a formally written paper and as a seminar report. Emphasis will be placed on writing style, manner of presentation, scholarship, and validity of conclusions.

671 Seminar in Musicology
1 hr.
A continuation of MUS 670.

672 Medieval Music
3 hrs.
The history of music in Western Europe from Gregorian Chant through the 14th century. Special attention will be given to problems of musical notation and how they relate to musical style. Projects will involve the transcription of music from older notational systems to modern notation.

673 Renaissance Music
3 hrs.
The history of music in Western Europe during the 15th and 16th centuries. Special attention will be given to problems of musical notation and how they relate to musical style. Projects will involve the transcription of music from older notational systems to modern notation.

677 Contemporary Music
2 hrs.
A survey of trends in European music and music of the Americas from about 1910 to the present day.

679 Composers
2 hrs.
An investigation of the life and works of a significant composer. The particular composer selected for study during a given semester will be indicated in the schedule of classes. The course may be retaken for credit when dealing with a different composer.

690 Graduate Recital
2 hrs.
Presentation of a full-length recital in the student's area of concentration (applied music or composition). This course also requires an appropriate document relative to the repertoire performed. The course is evaluated by the faculty teaching in that area. Prerequisite: By consent of instructor.

691 Special Project in Music Education
2 hrs.
A research project designed as one alternative for the culmination of Master of Music — Music Education degree. The nature of the special project is to be determined in consultation with the graduate adviser. Consent of graduate adviser required. May be repeated for credit to a total of not more than six hours.
Private Music Study — Open to Graduate Students Only

500 Applied Music

1-2 hrs.

Graduate students who are not majoring in applied music and who do not meet graduate performance level may register for this course. May be repeated for a total of not more than three credit hours.

600 Applied Music

1-4 hrs.

Qualified graduate students may study in applied music for a total of four semester hours per semester in the major performance area. Requires 60 minutes per week of instruction and necessary practice. May be repeated for credit.

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

700 Master’s Thesis

6 hrs.

710 Independent Research

2-6 hrs.
The Graduate College

GEORGE G. MALLINSON, Dean

RICHARD T. BURKE, Associate Dean

SID DYKSTRA, Associate Dean

Graduate Offerings:
Graduate Studies
Librarianship
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, he or she should seek permission to register for it as a Graduate College (GRAD) course. Beginning with the Fall Semester 1973, all 700-level courses have been graded on a Credit-No Credit basis.

**700 Master's Thesis**

Candidates for the master's degree may elect to write a thesis in their field of specialization under the supervision of a thesis committee. A student may elect this course in two units of from two to six hours. The election should not be made in more than two units and must be made within a calendar year. An application form, signed by the student's graduate advisor and the faculty supervisor, must be submitted to Registration at the time of enrollment. The "Specifications for Masters' Theses, Specialist Projects, and Doctors' Dissertations" is available in the bookstore. Graded on a Credit-No Credit basis.

**710 Independent Research**

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 advisor 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**

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 advisor and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit-No Credit basis.

**720 Specialist Project**

Designed for those units offering the specialist degree. The nature of the study, project or paper will vary from one program to another. After receiving unit approval, the original and two copies of the project reports of papers must be prepared for binding and submitted to The Graduate College for acceptance. The "Specifications for Masters' Theses, Specialist Projects, and Doctors' Dissertations" is available in the bookstore. An application form, signed by the student's graduate advisor and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit-No Credit basis.

**725 Doctoral Research Seminar**

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**

The doctoral dissertation must reflect a creative effort on the part of the student in using the skills of inquiry appropriate for his discipline. The acceptance
of the dissertation requires unanimous approval of the dissertation review committee and acceptance by The Graduate College. The original copy after acceptance will be used for microfilming by University Microfilm, Inc. at the student's expense. The student will retain the rights for further publication. The "Specifications for Masters' Theses, Specialist Projects, and Doctors' Dissertations" is available in the bookstore. An application form, signed by the student's graduate advisor and the faculty supervisor, must be submitted to Registration at the time of enrollment. Graded on a Credit-No Credit basis.

735 Graduate Research 2-10 hrs.

Units offering doctoral programs may use this number to designate research projects for their doctoral students. Such projects may be taken more than once by the student. Permission of instructor on "C" card is required. Graded on a Credit-No Credit basis.

Librarianship (LIB)

Lowrie, Director; Professor Grotzinger; Associate Professors Baechtold, Comaromi, McKinney, Miller; Assistant Professors Ballard, Carroll, Cohen, Edwards, Gilham, Smith

Open to Upperclassmen and Graduate Students

506 Introduction to Computers 1 hr.

Flow charts and computer programs will be prepared in the basic language to be run on the digital computer. Prerequisite: 1½ yrs. high school algebra or MATH 100.

510 Building Library Collections 3 hrs.


512 Reference Service 3 hrs.

Introduction to basic cataloging and classifying principles and procedures, and bibliographic information. Critical examination and evaluation of reference materials is a basic emphasis. Attention is to organization and methods of reference services in libraries. Open to students outside the program.

530 Introduction to Classification and Cataloging 3 hrs.

Introduction to basic cataloging and classifying principles and procedures. Includes theoretical study and practical application of descriptive cataloging, rules for determining main and secondary entries, subject cataloging, and classifying according to the Dewey Decimal Classification scheme. Processing non-book materials and the development, use and maintenance of library catalogs are included. Laboratory experience is required.

542 Reading Interests of Young Adults 3 hrs.

Study of the fields of literature suited to the interests of young people. Students are given opportunity through wide reading to develop principles and standards for the selection of the book collection. Includes an introduction to methods of stimulating border reading interests and conducting group book discussions with young people. Open to students outside the program.
546 Storytelling  
Underlying principles of the art of storytelling as a means of developing appreciation of literature and stimulating an interest in reading. Includes content and sources of materials, techniques and practice in telling stories before groups of children and planning the story hour program. Open to students outside the program.

598 Readings in Librarianship  
Offers a program for the advanced student for independent study in his special area of interest; arranged in consultation with a graduate adviser. Prerequisite: Written permission of instructor.  
Open to Graduate Students Only

600 Libraries and Librarianship  
Gives the student professional background through study of the historical development of the library, European and American; the function of the modern library and its contributions to society; current trends in librarianship and current library literature.

602 History of Books and Printing  
Study of the development of the book from the earliest period to modern times. Considers the appraisal of the physical book as well as its relationship to social and cultural developments. Includes history of the alphabet, early writing materials, manuscripts, inventions and spread of painting and evolution of book production. Open to students outside the program.

607 Library Experience  
An introduction to library activities and services through assignment to a selected library. For each credit hour received, 35 hours of supervised library experience are required. May be taken only with permission of the student's graduate adviser, and when an appropriate situation is available. Graded on the Credit-No Credit system.

612 Subject Bibliography: The Humanities and Social Sciences  
A study of specialized reference tools and bibliographical sources in the social sciences and the humanities. Each student will be expected to study and report on the literature and bibliographical development of a topic of his choice. Prerequisite: LIB 512 or equivalent. 612 need not precede 613.

613 Subject Bibliography: The Sciences  
A study and evaluation of representative bibliographical and reference tools in the physical, biological and applied sciences. Emphasis on factors related to scientific reference service and search strategy. Prerequisite: LIB 512 or equivalent.

614 Government Publication  
Study of city, state and federal documents and those of selected international agencies such as the United Nations. Problems of acquisition, organization and use of such collections in various types of libraries.

616 Materials and Methods for School Media Programs, K-12  
Cooperative role of media specialists, teachers and other school personnel in evaluation, selection and utilization of media appropriate to the instructional pro-
gram. Oral and written critical analysis of print and non-print materials combined with effective ways of working in all types of organizational patterns. Open to students outside the program.

**617 Reading Guidance for Children**

A study of the development of children's literature from approximately the 8th century in England and the Colonial period in the United States to the present time. Includes principles and techniques in guidance of children's reading interests and evaluation of current literature. Open to students outside the program.

**618 Libraries and Multi-Sensory Communication Media**

A study of modern multi-sensory aids employed in communicating ideas and considered in relation to their effect on libraries. Emphasis will be placed on program development through effective use of multi-media materials. Mass communications media and new instructional methods for fulfilling the objectives of public, school and college libraries will be examined.

**620 Public Library Service**

Origin and development, purposes and functions of the tax-supported public library (county and regional) in a democracy. Relation to other educational units in the community; distinctive problems and practices in public library organization and administration. Prerequisite: LIB 622 or equivalent.

**622 Library Administration and Management**

An introduction to administrative theory and the principles of management as they relate to the overall development, implementation and evaluation of library service and organization. General sessions plus small group instruction provide an opportunity to examine application of the above principles in public, academic, school and special library situations.

**623 College and University Library Service**

College and university library organization and administration, and the place of the library in academic institutions; effectiveness of library procedures; problems of acquisition, finance, buildings, equipment and the handling of special materials. Prerequisite: LIB 622.

**624 Library Service to Children and Young Adults**

The function and administration of public library service for children and young adults. Emphasis on coordination with school libraries and other community agencies; programs development in children's and youth adult departments.

**625 School Library Administration**

Consideration of the library as the media center of the school at the elementary and secondary levels. Emphasis on the program of services to faculty and students, including the administrative problems of budget planning, personnel requirements, space and equipment needs and library instruction.

**627 Administration of the School Media Center**

A seminar approach to contemporary issues including staff utilization, in-service programs for teachers, current trends in education and school media systems development. Prerequisite: LIB 625 or written permission of instructor.
628 Survey of Special Libraries
3 hrs.
Development of specialized library services to organizations in such fields as science and technology, fine arts, business, etc. Lectures and field trips.

629 Library Research
3 hrs.
Introduction to basic techniques of research methodology: descriptive, historical and experimental. Includes critical evaluation of library studies and their influence on library organization, administration and services. Opportunity for investigation and analysis of current problems in public, college, school, and special libraries. Prerequisite: Written permission of instructor.

630 Advanced Classification and Cataloging
3 hrs.
A continuation of Introduction to Classification and Cataloging 530. Attention is given to the Library of Congress Classification, to the history of cataloging, to current practice in the United States, and to the internal methods of economics of technical processing departments. Prerequisite: LIB 530 or equivalent.

631 Technical Services for School Media Centers
3 hrs.
Organization and objectives of the school processing center. Theory and application of the Dewey Decimal classification and other techniques in the organization of book and non-book materials. Special emphasis on technical services administration in individual libraries and systems with centralized processing. Prerequisite: LIB 530 or equivalent.

632 Technical Services Seminar
3 hrs.
Seminar in current trends in technical services. Includes the application and adaptation of basic cataloging and classification to specialized collections. Prerequisites: LIB 530, 630, or permission of instructor.

634 Data Processing for Libraries
3 hrs.
A survey, analysis, history, and evaluation of the uses of data processing equipment for the performance of operations in all kinds of libraries. Includes experience in analysis by flow-charting and in designing mechanization of a library task.

635 Information Storage and Retrieval
3 hrs.
Design of information storage and retrieval systems, with emphasis on automated aspects. Includes consideration of characteristics of media used for the storage of information and indexing and bibliographical control procedures used in retrieval systems, with emphasis on non-traditional methods. Trends and developments in modern information technology and methods of information dissemination are considered.

636 Indexing, Abstracting and Automated Language Processing
3 hrs.
A seminar approach to the problems of bibliographical control and the production of copy for secondary publications. Attention is given to indexing with controlled and uncontrolled vocabularies, book indexing, thesaurus construction, classification, and automated language processing. Practical experience is given in preparing abstracts and indexes from source documents.

644 Adult Reading Interests
3 hrs.
Evaluation of findings of reading studies and their implications for library
service; an understanding of reading habits, abilities and needs of adults. Study of the library as an adult education agency with an introduction to leadership training and adult education techniques.

654 Library Service to the Disadvantaged Child 3 hrs.

The study of socially and educationally deprived children in the urban, rural, and migrant communities and the relationship of library services to them through cooperative program planning between public and school libraries and observation and field experience in existing library and non-library community programs.

650 Advanced Seminar in Librarianship 2-4 hrs.

Analysis and study of specific problems in contemporary library practice. Lectures, field trips and resource consultants. Offered irregularly.

652 Seminar in International Librarianship 3 hrs.

Opportunity to study the development, current status, and needs of library service at the international level in all types of libraries.

655 Seminar in Library Education 3 hrs.

Designed for the advanced student interested in teaching in the field. Includes historical development, comparative librarianship, relationship of professional school in higher education, program and course analysis, and areas of research. Offered irregularly.

690 Studies in Librarianship 1-6 hrs.

Examines selected topics within the field of library science. Organization of course and topics considered will be determined in consultation with the graduate adviser.

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

700 Master’s Thesis 6 hrs.

710 Independent Research 2-6 hrs.

712 Professional Field Experience 2-12 hrs.

720 Specialist Project 2-6 hrs.
SECTION VI

The Graduate Faculty
Graduate Faculty

Graduate Faculty with permanent approval:

Adams, David W., 1956, Professor of Teacher Education
   B.A., Ohio Wesleyan; M.A., Ed.D., New York

Alessi, Galen J., 1974, Assistant Professor of Psychology
   B.S., Maryland; M.A., Western Michigan; Ph.D., Maryland

Alvai, Yousef, 1958, Professor of Mathematics
   B.S., M.S., Ph.D., Michigan State

Allgood, William T., 1969, Assistant Professor of Music
   B.S., East Carolina; M.M., Illinois

Alvarez, Elsa, 1964, Assistant Professor of Spanish
   M.A., Iowa; Ph.D., Havana; Ph.D., Michigan State

Anderson, M. Joy, 1968, Assistant Professor of Occupational Therapy
   B.A., David Lipscomb College; Certificate in Occupational Therapy,
   Texas Women's; M.A., Western Michigan

Anderson, Robert H., 1957, Associate Professor of Chemistry
   B.A., Baker; M.A. Ph.D., Columbia

Amsel, James O., 1949, Professor of Teacher Education and Director of
   Rural Education
   B.A., Western Michigan; M.A., Northwestern; Ed.D., Columbia

Appel, William C. 1965, Associate Professor of Music
   B.S., State Teachers of Indiana (Pa.); M. Mus., Indiana

Argyropoulos, Triantafilos, 1964, Associate Professor of Art
   B.S., M.F.A., Michigan

Armstrong, James W., 1969, Assistant Professor of Teacher Education
   B.S., Northwestern; Ed.D., Indiana

Ashbaugh, Lawrence L., 1969, Associate Professor of Special Education
   B.S., Clarion State; M.Ed., Ed.D., Pennsylvania State

Asher, Eston J., Jr., 1954, Director of Institutional Research and
   Professor of Psychology
   B.S., Kentucky; M.S., Ph.D., Purdue

Atkins, Michael B., 1971, Assistant Professor of Industrial Education
   B.S., M.S., East Texas State; Ed.D., Texas A & M

Bailey, Frederick S., 1958, Assistant Professor of Teacher Education
   B.S., M.A., Western Michigan; Ph.D., Michigan State

Baker, Lee O., 1954, Professor and Head, Department of Agriculture
   B.S., Wisconsin State (Platteville); M.S., Wisconsin; Ed.D., Michigan State

Baldwin, Elizabeth E., 1964, Associate Professor of Anthropology
   B.A., Wellesley; M.A., Radcliffe; Ph.D., Harvard

Balkin, Alfred, 1971, Associate Professor of Music
   B.A., M.A., Indiana; M.A., Ed.D., Columbia

Ballard, Robert M., 1972, Assistant Professor of Librarianship
   B.A., Morehouse; M.S.L.S., Atlanta; M.A., Eastern Michigan; Ph.D., Michigan

Batch, Nicholas C., 1972, Assistant Professor 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; M.A., Florida; Ph.D., Wisconsin
Beech, George T., 1960, Professor of History
B.A., Michigan State; Ph.D., Johns Hopkins

Beelick, Delbert B., 1970, Assistant Professor of Business Education and
Administrative Services

Bendix, John L., 1955, Professor of Industrial Education
B.S., Stout State; M.A., Minnesota; Ed.D., Indiana

Benne, Max E., 1964, Associate Professor of Directed Teaching
B.S., M.S., Ed.D., Michigan State

Bennett, William S., Jr., 1968, Professor of Sociology
B.A., Denison; M.A., Ph.D., Missouri

Berndt, 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 University

Betz, Robert L., 1961, Professor of Counseling and Personnel
B.A., Albion; M.S., Illinois; Ph.D., Michigan State

Beukema, Henry J., 1943, Professor of Engineering and Technology
B.S., Western Michigan; M.A., Michigan

Beuving, Leonard J., 1970, Assistant Professor of Biology
B.A., M.A., Ph.D., California (Berkeley)

Birch, William G., Sr., 1971, Adjunct Professor of Biology
B.M., M.D., Northwestern

Bischoff, Guntram G., 1965, Associate Professor of Religion
University of Bonn, University of Gottingen; B.D., Th.D.,
Princeton Theological Seminary

Bjerregaard, Carl, 1968, Associate Professor of Music
B.Mus., Western Michigan; M.M., Michigan State

Bladt, Dorothy L., 1968, Associate Professor of Teacher Education
B.S., Chicago; M.S., Ed.D., Northern Illinois

Blasch, Donald, 1961, Professor and Chairman, Department of Blind Rehabilitation
B.E., Northern Illinois; M.A., Chicago

Blefko, 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

Blumen, Dean E., 1970, Associate Professor and Chairman,
Department of Mechanical Engineering Technology
B.A., Hiram; B.S.M.E., Carnegie Institute of Technology;
M.S., Michigan State; Ph.D., West Virginia

Boettcher, Richard E., 1969, Professor of Social Work
B.A., Augustana; M.S.W., Washington, (St. Louis), Ph.D., Minnesota

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; M.A., Ph.D., Indiana

Bosco, James J., 1965, Professor of Teacher Education
B.Ed., Duquesne; M.Ed., Pittsburgh; Ed.D., Columbia
Boucher, Joan Ann, 1966, Assistant 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

Bowers, Robert S., 1937, Professor of Economics
B.A., Kansas Wesleyan; M.A., American; Ph.D., Wisconsin

Boyd, William S., Jr., 1969, Assistant Professor of Mathematics
B.S., Southwestern at Memphis; Ph.D., Tennessee

Bradfield, Leila A., 1970, Assistant Professor of Sociology
B.S., M.S., Ph.D., Cornell

Bradley, George E., 1951, Professor of Physics
B.A., Miami; M.S., Ph.D., Michigan

Braithwaite, Lloyd, 1968, Associate Professor of Sociology and Social Work
B.S., M.Crim.; D.Crim., California (Berkeley)

Branchaw, Bernadine P., 1971, Assistant 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 Teacher Education
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 Chairman, Department of History
Matura, Reagymnasium Knittelfeld and Vienna VII; Ph.D., Vienna;
Dr. rer. oec., Hochschule fuer Welthandel

Brennan, Margaret Jane, 1965, Professor of Home Economics
B.S., Western Michigan; M.A., Columbia; Ed.D., Pennsylvania State

Brenton, Beatrice, 1969, Assistant Professor of Teacher Education
B.S., Stout State; M.A., Ph.D., Michigan State

Brewer, Richard, 1959, Professor of Biology
B.A., Southern Illinois; M.S., Ph.D., Illinois

Brown, Alan S., 1955, Professor of History
B.A., M.A., Ph.D., Michigan

Brown, Charles T., 1948, Professor and Chairman, Department of
Communication Arts and Sciences, and Director, Center for
Communication Research
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 Pittsburg; Ed.D., Missouri

Brunhumer, Walter J., 1957, Professor of History
B.A., M.A., Marquette; Ph.D., Northwestern

Buckley, Joseph T., 1970, Associate Professor of Mathematics
B.S., Boston College; Ph.D., Indiana

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Bullmer, Kenneth, 1970, Assistant Professor of Counseling and Personnel
B.S.B.A., Washington; M.A., Michigan; Ed.D., Indiana

Bullock, Donald P., 1963, Professor of Music
B.M.E., M.M., Colorado

Bunda, Mary Anne, 1973, Associate Professor of Educational Leadership
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B.S., M.Ed., Loyola (Chicago); Ph.D., Illinois (Urbana)

Burdick, William L., 1949, Professor of General Business
B.A., Milton; M.B.A., Ph.D., Wisconsin

Burian, William A., 1969, Professor of Social Work
B.S., John Carroll; M.S.W., Boston College; Ph.D., Chicago

Burke, John T., 1962, Professor and Head, Department of Accountancy
B.S., Carroll; M.A., Ph.D., Michigan State; C.P.A., Wisconsin

Burke, Richard T., 1964, Associate Dean, The Graduate College, and Associate
Professor of History
B.A., M.A., Boston; Ph.D., Northwestern

Burns, James W., 1968, Associate Professor of Teacher Education
B.S., Central Connecticut; M.Ed., Ed.D., Pennsylvania State

Burns, Mary E., 1969, Professor of Social Work
B.A., M.S.W., Michigan; Ph.D., Chicago

Buthala, Darwin A., 1970, Associate Professor of Biology
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

Cain, Mary A., 1962, Professor of Teacher Education
B.A., Michigan; M.A., Western Michigan; Ph.D., Michigan State

Callan, Edward T., O.D., 1957, Professor of English
B.A., Witwatersrand; M.A., Fordham; D. Litt. et Phil., University of
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Cardenas, Mercedes R., 1966, Assistant Professor of Spanish
B.A., M.A., Michigan State; Ed.D., Havana; Ph.D., Michigan State

Carley, David D., 1964, Associate Professor of Physics
B.A., Western Michigan; M.S., Michigan; Ph.D., Florida

Carlson, Bernadine P., 1953, Assistant Professor of English
B.A., M.A., Western Michigan; Ed.D., Michigan

Carlson, Lewis H., 1968, Associate Professor of History
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, Theodore L., 1947, Professor of Economics
B.A., Augustana; M.A., Ph.D., Illinois

Carlson, William A., 1966, Professor of Counseling and Personnel
Carney, John M., 1966, Associate Professor of Art  
Carter, Elwyn F., 1945, Professor of Music  
B.A., Alma; M.A., Ed.D., Columbia
Casey, James S., 1967, Associate Professor of General Business  
B.A., Western Michigan; J.D., Notre Dame
Castel, Albert E. III, 1960, Professor of History  
B.A., M.A., Wichita; Ph.D., Chicago
Chang, Albert Y., 1971, Adjunct Assistant Professor of Biology  
B.S., National Taiwan; M.A., California; Ph.D., Illinois
Chaplin, David, 1972, Professor and Chairman, 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
Cheatum, Billye Ann, 1967, Associate Professor of Women’s Physical Education  
B.S., Oklahoma College for Women; M.S., Smith; Ph.D., Texas Women’s
Chiara, Clara R., 1949, Professor of Teacher Education  
B.S., Miami; M.A., Western Reserve; Ph.D., Ohio State
Clark, Michael J., 1971, Assistant Professor of Speech Pathology and Audiology  
B.A., Oberlin; M.A., Ph.D., Michigan
Clark, Samuel L., 1948, Director of Honors College and Professor of Political Science  
B.A., Ph.D., Chicago
Clarke, A. Bruce, 1967, Professor and Head, Department of Mathematics  
B.A., Saskatchewan; M.S., Ph.D., Brown
Cole, Roger L., 1959, Professor and Chairman, Department of Modern and Classical Languages  
B.A., M.A., Ph.D., Michigan
Comaromi, John P., 1970, Associate Professor of Librarianship  
B.A., M.A.L.S., M.A. (English), 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, 1971, Associate Professor of English  
B.A., University College (Dublin); M.A., Indiana; Ph.D., California (Berkeley)
Copps, John A., 1959, Professor of Economics  
B.S., Ph.D., Wisconsin
Cordier, Sherwood S., 1956, Professor of History  
B.A., Juniata; M.A., Yale; Ph.D., Minnesota
Cothran, Tilman C., 1972, Associate Dean, College of Arts and Sciences and Professor of Sociology  
B.A., A.M. &N. College; M.A., Indiana; Ph.D., Chicago
Coulter, Myron I., 1966, President, Western Michigan University and Professor of Education  
B.A., Indiana State Teachers; M.S., Ed.D., Indiana  

Coutant, Victor, 1966, Professor of German and Classics  
B.A., M.A., Ph.D., Columbia  

Cowden, David J., 1969, Assistant Professor of Teacher Education  
B.S., M.S., Northern State; Ed.D., South Dakota  

Crane, Loren D., 1965, Associate Professor Communication Arts and Sciences  
B.A., Brigham Young; M.A., Ph.D., Ohio State  

Cronk, Casper, 1973, Assistant Professor Geology  
B.A., Harvard; Ph.D., Ohio State  

Curl, David H., 1966, Professor of Teacher Education  
B.F.A., Ohio; M.S., Ed.D., Indiana  

Curtis-Smith, Curtis, 1968, Assistant Professor of Music  
B.M., M.M., Northwestern  

Dahlberg, Kenneth A., 1966, Associate Professor of Political Science  
B.A., Northwestern; M.A., Stanford; Ph.D., Colorado  

Dales, George G., 1953, Professor of Men's Physical Education  
B.S., Miami; M.A., Michigan  

Daniels, James E., 1963, Associate Professor of Accountancy  
B.S.B.A., Kansas State of Pittsburg; M.B.A., Ph.D., Arkansas  

Dannenberg, Raymond A., 1956, Professor and Chairman, Department of Distributive Education  
B.S., Western Michigan; M.A., Ph.D., Michigan  

Darling, Dennis E., 1967, Assistant 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  

Davidson, Clifford O., 1965, Associate Professor of English  
B.S., St. Cloud State; M.A., Ph.D., Wayne State  

Davis, Robert S., 1965, Associate Professor and Chairman, Department of English  
B.A., Indiana; M.A., Ph.D., Claremont  

Davis, Ronald W., 1966, Assistant Professor of History  
B.A., Bowling Green State; M.A., Ph.D., Indiana  

Davis, Ruth M., 1961, Professor of Women's Physical Education  
B.S., M.Ed., Bowling Green State; Ph.D., Ohio State  

Day, Robert B., 1965, Professor of Engineering and Technology  
B.S., M.Sc. (Met.C.), Cincinnati; D.Sc. (Met.E.), Colorado School of Mines; P.E.  

Deluca, Joseph V., 1966, Associate Professor of Art  
B.S., M.A., Bowling Green State; M.F.A., Michigan State  

Demetrakopoulos, Stephanie Fisher, 1971, Assistant Professor of English  
B.S., Portland State; M.A., Ph.D., Minnesota  

Denefeld, Philip, 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.A., Wayne State; M.A., Ph.D., Northwestern

DeYoung, Ronald C., 1970, Associate Professor of Business Education and
  Administrative Services
  B.S., M.A., Western Michigan; Ed.D., Northern Illinois

Diani, Arthur R., 1973, Assistant Professor of Biology
  B.A., M.S., Ph.D., St. Louis

Dickason, David G., 1966, Associate Professor of Geography
  B.A., Wooster; M.A., Pittsburgh; Ph.D., Indiana

Dickie, Kenneth E., 1967, Associate Professor of Teacher Education
  B.S., M.S., Stout State; Ed.D., Indiana

Dierker, Richard J., 1966, Associate Professor of Communication Arts and Sciences
  B.S., M.S., Kansas State Teachers; Ph.D., Michigan State

Doolittle, F. William, 1964, Associate Professor of Men's Physical Education
  B.S., Ohio State; M.A., Eastern Michigan

Dotson, Allen C., 1964, Associate Professor of Physics
  B.S., Wake Forest; Ph.D., North Carolina

Douma, Rollin G., 1970, Assistant Professor of English
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Druker, Marvin J., 1970, Assistant Professor of Political Science
  B.A., Michigan; M.A., Ph.D., Wisconsin

Dube, Thomas M.T., 1970, Assistant Professor of Social Science and
  Teacher Education
  B.A., University of Lesotho; U.E.D., University of South Africa; M.A.,
  Chicago; M.S., Long Island; Ed.D., Rochester

DuCharme, Donald W., 1971, Adjunct Assistant Professor of Biology
  B.A., Central Michigan; Ph.D., Michigan

Dumlao, Gerald, 1966, Assistant Professor of Art
  B.F.A., Cleveland Institute of Art; M.F.A., Cranbrook Academy of Arts

Dulin, William E., 1968, Adjunct Professor of Biology
  B.S., Washington College; Ph.D., Indiana

Dull, Elizabeth H., 1970, Assistant Professor of Art
  B.F.A., North Carolina; Ph.D., Northwestern

Dwarikesh, D.P.S., 1968, Associate Professor of Linguistics
  M.A. (Hindi), M.A. (Sanskrit), Agra (India); M.A. (Linguistics),
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Dykstra, Sidney, 1964, Associate Dean, The Graduate College and
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  B.A., Calvin; M.A., Ph.D., Michigan

Earhart, H. Byron, 1966, Associate 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

Eckstein, Peter, 1971, Associate Professor of Economics
  B.A., Michigan; M.A., Ph.D., Harvard

Edmonson, Frank A. III, 1971, Assistant Professor Music
  B.M.E., M.A., Ph.D., Florida State
Edwards, Adrain C., 1964, Professor of General Business
B. Comm., St. Francis Xavier; M.B.A., Detroit; Ph.D., Ohio State

Edwards, Ralph M., 1970, Assistant Professor of Librarianship
B.A., M.I.S., Washington; D.I.S., California (Berkeley)

Eenigenburg, Paul J., 1969, Associate Professor of Mathematics
B.A., Hope; M.A., Kansas; Ph.D., Kentucky

Eichenlaub, Val I., 1962, Associate Professor of Geography
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Eisenbach, Joseph J., 1961, Professor and Head, 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 Biology
B.S., Northwest Missouri State; M.S., Ph.D., North Carolina State

Elder, E. Rozanne, 1968, Director, Institute of Cistercian Studies; Assistant Director, Medieval Institute; Adjunct Assistant Professor of History
B.S., M.A., Western Michigan; Ph.D., Toronto

Elin, Joseph S., 1962, Associate Professor and Chairman, Department 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

Emerson, Frank C., 1968, Assistant Professor of Economics
B.S., Davidson; M.B.A., New York; Ph.D., Minnesota

Engemann, Joseph G., 1960, Associate Professor of Biology
B.A., Aquinas; M.S., Ph.D., Michigan State

Engle, Kenneth B., 1962, Professor of Counseling and Personnel
B.A., Western Michigan; M.A., Michigan; Ed.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 Sociology and Teacher Education
B.S., Central Michigan; M.A., Ed.D., Michigan State

Erickson, Robert L., 1963, Professor of Speech Pathology and Audiology
B.A., Omaha; M.A., Nebraska; Ph.D., Iowa

Everett, Frederick 1960, Professor of Accountancy
B.A., Northern Iowa; M.A., Iowa; C.P.A., State of Iowa

Falk, Arthur E., 1964, Associate Professor of Philosophy
B.A., Fordham; M.A., Ph.D., Yale

Falk, Nancy A., 1969, Associate Professor and Chairman, Department of Religion
B.A., Cedar Crest; M.A., Ph.D., Chicago

Farris, Howard E., 1967, Associate Professor of Psychology
B.A., M.A., Western Michigan; Ph.D., Michigan State

Fatzinger, Frank A., 1951, Professor of Psychology
B.A., M.A., Lehigh; Ph.D., Purdue

Faustman, Marcella S., 1949, Professor of Music
B.S., M.A., Columbia
Feirer, John L., 1940, Professor and Head, Department of Industrial Education  
B.S., Stout State; M.A., Minnesota; Ed.D., Oklahoma

Felkel, Robert W., 1971, Assistant Professor of Spanish  
B.S., M.A., Boston College; Ph.D., Michigan State

Fialkow, Lawrence A., 1973, Assistant Professor of Mathematics  
B.A., Brandeis; Ph.D., Michigan

Ficsor, Gyula, 1967, Associate Professor of Biology  
B.S., Colorado State; Ph.D., Missouri

Fink, Robert R., 1957, Professor and Chairman, Department of Music  
B.M., M.M., Ph.D., Michigan State

Fischbach, Gerald F., 1973, Associate Professor of Music  
B.F.A., Wisconsin (Milwaukee); M.M., Illinois; D.M.A., Iowa

Fisk, Franklin G., 1969, Associate Professor of Natural Science and Teacher Education  
B.S., M.S., Ph.D., Kansas

Fitch, W. Chester, 1968, Dean, College of Applied Sciences and Professor of Engineering and Technology  
B.S., Montana State; M.S., Ph.D., Iowa State; P.E.

Fleischhacker, Daniel, 1965, Associate Professor of Communication Arts and Sciences  
B.A., B.S., M.A., Minnesota; Ph.D., Michigan State

Flynn, John P., 1970, Professor of Social Work  
B.A., M.S.W., Michigan; D.S.W., Denver

Foote, J. Lindsley, 1965, Associate Professor of Chemistry  
B.S., Miami; Ph.D., Case Institute of Technology

Fowler, Dona J., 1965, Associate Professor of Biology  
B.S., M.S., Ph.D., Purdue

Friday, Paul C., 1972, Associate Professor of Sociology  
B.A., Drew; M.A., Ph.D., Wisconsin

Friedman, Stephen B., 1966, Associate Professor of Biology  
B.A., Rochester; M.S., Syracuse; Ph.D., Illinois

Fritscher, John J., 1967, Associate Professor of English  
B.A., Pontifical College Josephinum; M.A., Ph.D., Loyola (Chicago)

Furbay, Albert L., 1970, Associate Professor of Communication Arts and Sciences  
B.A., Taylor; M.A., Ph.D., Wayne State

Galligan, Edward L., 1958, Professor of English  
B.A., Swarthmore; M.A., Columbia; Ph.D., Pennsylvania

Gardiner, Jeffrey B., 1970, Assistant Professor of German  
B.A., Stanford; M.A., Ph.D., Colorado

Gardner, Wayland D., 1964, Associate Professor of Economics  
B.A., Doane; M.S., Ph.D., Wisconsin

Garland, William, 1962, Professor of Anthropology  
B.A., Texas; Ph.D., Minnesota

Gault, Frederick P., 1968, Professor and Chairman, Department of Psychology  
B.A., Rutgers; M.A., Ph.D., Indiana
Gheen, W. Lloyd, 1970, Assistant Professor of Industrial Education
B.S., Brigham Young; M.Ed. Ed.D., Texas A & M

Gianakaris, Constantine J., 1966, Professor of English
B.A., M.A., Michigan; Ph.D., Wisconsin

Gingerich, Martin, 1968, Assistant Professor of English
B.S., Shipeensburg State; M.A., Maine; Ph.D., Ohio

Goia, Anthony A., 1966, Professor of Mathematics
B.A., Connecticu; M.A., Ph.D., Missouri

Goldfarb, Clare R., 1961, Associate Professor of English
B.A., Smith; M.A., New York; Ph.D., Indiana

Goldfarb, Russell M., 1960, Professor of English
B.A., University College, New York; M.A., New York; Ph.D., Indiana

Goldsmith, Donald L., 1968, Associate Professor of Mathematics
B.A., M.A., Ph.D., Pennsylvania

Goodnight, Clarence J., 1965, Professor and Head, Department of Biology
B.A., M.A., Ph.D., Illinois

Gossman, Thomas L., 1970, Associate Professor of General Business
B.S., J.D., Indiana

Govatos, Louis A., 1952, Professor of Teacher Education
B.S., Minnesota; M.A., Ph.D., Michigan

Grace, John D., 1969, Associate Professor of Geology
B.A., Denison; M.S., Pennsylvania State; Ph.D., Leeds

Grandstaff, Russell J., 1965, Associate Professor of Communication
Arts and Sciences
B.A., Fairmont State College; M.A., Bowling Green State; Ph.D., Michigan

Green, Ernestene, 1968, Associate Professor of Anthropology
B.A., M.A., Arizona; Ph.D., Pennsylvania

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, Assistant Professor of Spanish
B.A., M.A., Seton Hall; Diploma de Estudios Hispanicos, University of
Zaragoza; Ph.D., Ohio State

Griggs, James H., 1948, Professor of Teacher Education
B.A., Harvard; M.A., Ed.D., Columbia

Grossnickle, Edwin, 1957, Professor of General Business
B.A., Manchester; M.A., Iowa; Ph.D., Ohio State

Grotzinger, Laurel Ann, 1964, Professor of Librarianship
B.A., Carleton; M.S., Ph.D., Illinois

Groulx, Roy W., 1957, Professor of Engineering and Technology
B.A., M.A., Ph.D., Michigan State
Grundler, Otto, 1961, Professor of Religion
ABITUR, Gymnasium Nordhorn (Germany); B.D., Western Theological Seminary; Th.D., Princeton Theological Seminary

Haas, Kenneth B., 1971, Adjunct Professor Biology
M.A., Western Michigan; D.V.M., Ohio State

Hagengruber, Roger L., 1971, Assistant Professor of Physics
B.S., M.S., Ph.D., Wisconsin

Hahn, Robert J., 1961, Associate Professor of History
B.A., Miami, M.A., Ph.D., Ohio State

Hahneng Willard, 1957, Associate Professor of Music
B.M., M.A., Western Michigan

Hammer, H. Nicholas, 1956, Professor of History
B.A., M.A., Emory; Ph.D., Ohio State

Hanna ford, Alonzo E., 1970, Associate Professor of Special Education
B.S., M.S., Illinois State; Ed.D., Northern Colorado State

Hannah, Robert W., 1970, Secretary, Board of Trustees and Assistant Professor of History
B.A., Yale; M.A.T., Harvard; Ph.D., Michigan State

Hannon, Herbert H., 1947, Professor of Mathematics
B.A., Western Michigan; M.A., Michigan; Ed.D., Northern Colorado

Hansen, Marc F., 1957, Professor of Art
B.A., San Jose State; M.A., Ohio State

Hanson, David P., 1969, Assistant Professor of Political Science
B.A., Haverford; M.A., Ph.D., Florida

Hardie, Gerald, 1965, Professor of Physics
B.S., M.S., Manitoba (Canada); Ph.D., Wisconsin

Hardie, Thomas C., 1957, Associate Professor of Music
B.Mus., M.Mus., North Texas State

Hardin, Frances S., 1957, Professor of Marketing
B.S., M.A., Nebraska; Ph.D., Colorado

Harmon, Robert E., 1961, Professor of Chemistry
B.S., Washington State; Ph.D., Wayne State

Harring, Richard L., 1968, Associate Professor of Teacher Education
B.S., M.A., Eastern Michigan; Ed.D., Indiana

Harrison, Carole, 1960, Associate Professor of Art
B.F.A., M.F.A., Cranbrook Academy of Art

Harrison, William B., III, 1973, Assistant Professor of Geology
B.A., M.A., University of South Florida; Ph.D., Cincinnati

Hartenstein, Fred V., 1959, Professor of Management
B.A., M.A., Ph.D., Pittsburgh

Hatch, Richard A., 1969, Associate Professor of Business Education and Administrative Services
B.S., Boston; Ph.D., Illinois (Urbana)

Hawkins, Robert P., 1971, Associate Professor of Psychology
B.S., Lewis and Clark; M.S., 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

Heger, Frank E., 1963, Associate Professor of Teacher Education
B.A., Eastern Michigan; M.A., Ph.D., Michigan

Heinig, Edward J., 1963, Professor of Teacher Education
B.A., Indiana State; M.A., Ph.D., Michigan

Helgesen, Charles, 1955, Professor of Communication Arts and Sciences
B.S., St. Cloud; M.A., Ph.D., Denver

Hellenga, Robert D., 1963, Director of Career Planning and Placement
and Associate Professor of Educational Leadership
B.A., Western Michigan; M.A., Michigan; Ed.D., Michigan State

Heller, Charles F., 1961, Professor of Geography
B.A., M.A., Kansas; Ph.D., Illinois

Henderson, Donna L., 1971, Assistant Professor of Special Education
B.A., M.A., Idaho; Ed.D., Northern Colorado

Henderson, Jon M., 1964, Associate Professor of Art
B.F.A., M.F.A., Kansas

Hendriksen, Daniel P., 1966, Associate Professor of Linguistics
B.A., Calvin; M.A., (Edu.), M.A. (Linguistics); Ph.D., Michigan

Herman, John E., 1966, Associate Professor of Physics
B.S.E., M.S.E., M.S., Ph.D., Michigan

Hesselberth, Cassius, 1963, Professor and Chairman, Department of
Electrical Engineering Technology
B.S.E.E., M.S.E.E., Ph.D., (E.E.), Illinois

Hetherington, Elizabeth, 1963, Professor and Chairman, Department of Dance
B.S., Miami; M.A., Ohio State; Ed.D., Northern Colorado

Hill, James W., 1970, Associate Professor of Management
B.A., Detroit Institute of Technology; M.A., Ph.D., Wayne State

Hinkel, Robert, 1968, Assistant Professor of English
B.A., Washington and Lee; M.A., Ph.D., Northwestern

Hinton, Alfred F., 1970, Assistant Professor of Art
B.A., Iowa; M.F.A., Cincinnati

Hirsch, Christian R., Jr., 1973, Assistant Professor of Mathematics
B.A., Iowa; M.A., Creighton; M.S., Illinois; Ph.D., Iowa

Hitzing, E. Wade, 1968, Adjunct Assistant Professor of Psychology
B.A., Florida; M.S., Ph.D., Florida State

Ho, Alfred K., 1967, Professor of Economics
B.A., Yenching (China); Ph.D., California (L.A.); Ph.D., Princeton

Holaday, Clayton A., 1956, Professor of English
B.A., Miami; M.A., Western Reserve; Ph.D., Indiana

Holkeboer, Paul E., 1955, Professor of Chemistry
B.A., Hope; M.A., Ph.D., Purdue

Holland, David, 1970, Associate Professor of Home Economics
B.A., Iowa; Ph.D., Iowa State

Holmes, Robert, 1966, Dean, College of Fine Arts and Professor of Music
B.Mus., M.A., Ph.D., Boston
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Holt, Iry Vincent, 1961, Professor of Biology
B.S., New Mexico State; M.S., Ph.D., Iowa State

Horst, Oscar H., 1956, Professor and Chairman, Department of Geography
B.S., M.A., Ph.D., Ohio State

Horton, Paul B., 1945, Professor of Sociology
B.A., Kent State; Ph.D., Ohio State

Houdek, John T., 1969, Assistant Professor of History
B.A., M.A., Ph.D., Michigan State

Horst, Oscar H., 1956, Professor and Chairman, Department of Geography
B.S., Illinois Institute of Technology; M.S., Ph.D., Michigan

Howell, James A., 1964, Associate Professor of Chemistry
B.A., Southern Illinois; M.S., Illinois; Ph.D., Wayne State

Howell, Robert W., 1971, Assistant Professor of Special Education
B.S., M.A., Western Michigan; Ph.D., Southern Illinois

Hoy, Joseph T., 1952, Professor and Head, Department of Men’s Physical Education and Director of Athletics
B.S., Western Michigan; M.A., Michigan; Ed.D., Indiana; P.E.

Hsieh, Philip Po-Fang, 1964, Professor of Mathematics
B.S., National Taiwan (Formosa); M.S., Ph.D., Minnesota

Huitema, Bradley E., 1968, Associate Professor of Psychology
B.A., Southern Illinois; M.A., Western Michigan; Ph.D., Colorado State

Humiston, Robert G., 1961, Associate Professor of Music
B.M., Oberlin; M.A., Ph.D., Iowa

Hunt, Chester L., 1948, Professor of Sociology
B.A., Nebraska Wesleyan; M.A., Washington; Ph.D., Nebraska

Hutchings, Gilbert R., 1955, Professor of Industrial Education
B.S., Western Michigan; M.A., Michigan

Ilfland, Don C., 1956, Professor and Chairman, Department of Chemistry
B.S., Adrian; M.S., Ph.D., Purdue

Iman, Ronald L., 1973, Assistant Professor of Mathematics
B.S., Kansas State; M.A., Kansas State Teachers; M.D., Ph.D., Kansas State

Inselberg, Edgar; 1966, Associate Professor of Biology
B.S., Cornell; M.S., Ph.D., Illinois

Inselberg, Rachel M., 1966, Professor of Teacher Education
B.S., Philippine Women’s University; M.S., Illinois; Ph.D., Ohio State

Isaak, Alan C., 1966, Associate Professor of Political Science
B.A., Western Reserve; M.A., Ph.D., Indiana

Jackman, Albert H., 1959, Professor of Geography
B.S., Princeton; Ph.D., Clark

Jaksa, James A., 1967, Associate Professor of Communication Arts and Sciences
B.A., Central Michigan; M.A., Michigan; Ph.D., Wayne State

Janes, Raymond L., 1957, Professor and Head, Department of Paper Science and Engineering
B.S., Western Michigan; M.S., Ph.D., Institute of Paper Chemistry
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Jetty, Albert J., 1968, Assistant Professor of Speech Pathology and Audiology
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Jevert, Joseph A., 1962, Associate Professor of Men’s Physical Education
B.S., Wisconsin State; M.A., Western Michigan (Dir. P.E., Indiana)

Johnson, A. Elizabeth, 1949, Professor of Teacher Education
B.A., Kalamazoo; M.A., Columbia; Ed.D., Wayne State

Johnson, G. Stewart, 1960, Professor of Mechanical Engineering Technology
B.S.E., (M.E.), Michigan; M.S. (M.E.), Michigan State; P.E.

Johnson, Gordon O., 1960, Associate Professor of Industrial Education
B.S., Northeast Missouri State; M.Ed., Missouri; Ed.D., Indiana

Johnson, Walter E., 1972, Assistant Professor of Biology
B.S., M.Ed., Texas (El Paso); Ph.D., Texas (Austin)

Johnston, Wm. Arnold, 1966, Associate Professor of English
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Jones, Darrell G., 1962, Associate Dean, College of Business and Professor
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B.S., M.A., Northern Iowa; Ph.D., Michigan State

Josten, John J., 1968, Associate Professor of Biology
B.S., Cincinnati; M.S., Miami; Ph.D., Indiana

Junker, Louis J., 1961, Professor of Economics
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Kaarlela, Ruth, 1963, Associate Professor of Blind Rehabilitation
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Kana’an, Adli S., 1965, Associate Professor of Chemistry
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Kanzler, William H., 1961, Professor of Teacher Education
B.S., U.S. Naval Academy; M.A., Columbia; Ed.D., Wayne State

Kapoor, S.F., 1967, Associate Professor of Mathematics
B.S., M.S., B.L., Bombay; Ph.D., Michigan State

Karsten, David, 1967, Associate Professor of Communication Arts and Science
B.A., Hope; M.A., Northwestern; Ph.D., Michigan State

Kaufman, Maynard L., 1963, Associate Professor of Religion
B.A., Bethel; M.A., Ph.D., Chicago

Kaufman, Robert W., 1959, Professor of Political Science, Director of Institute
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B.S., Wisconsin; M.A., Ph.D., American

KauL, R. Dean, 1967, Associate Professor of Physics
B.S., Ph.D., Case Institute

Keaveney, Richard, 1968, Associate Professor of Art
B.S., Massachusetts College of Art; M.F.A., Rhode Island School of Design

Keely, Charles B., 1970, Associate Professor of Sociology
B.A., M.A., Ph.D., Fordham University

Keenan, J. Michael, 1962, Professor of Management
B.A., M.S., Colorado; Ph.D., Ohio State
Kent, Louise M., 1967, Adjunct Assistant Professor of Psychology  
B.A., M.A., Indiana; Ph.D., Iowa

Kent, Neil D., 1965, Professor of Psychology  
B.A., M.A., Baylor; Ph.D., Indiana

Kilty, Ted K., 1968, Associate Professor of Teacher Education  
B.A., M.A., Andrews; Ph.D., Michigan

Kim, C.J. Eugene, 1961, Professor of Political Science  
B.A., King; M.A., Vanderbilt; Ph.D., Stanford

King, Donald E., 1966, Assistant Professor of Art  
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Kirkherr, Eugene C., 1957, Professor of Geography  
B.Ed., Chicago State; M.S., Ph.D., Northwestern

Kirton, Kenneth T., 1971, Adjunct Associate Professor of Biology  
B.S., Kansas State; M.S., Ph.D., Michigan State

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B.S., Wayne State; B.S., O.T. Certificate, Eastern Michigan; M.A.,  
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Kissel, Johannes A., 1968, Assistant Professor of German  
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Klein, George, 1958, Professor of Political Science  
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Kobrak, Peter, 1973, Assistant Professor of Political Science  
B.A., Oberlin; M.S., Wisconsin; M.A., Yale; Ph.D., Johns Hopkins

Koronakos, Chris, 1960, Professor of Psychology  
B.A., Colorado; M.A., Ph.D., Nebraska

Kramer, Philip H., 1970, Professor of Social Work  
B.A., Brooklyn; M.S.W., Columbia; Ph.D., Brandeis

Kripalani, Gangaram K., 1968, Associate Professor of Economics  
M.S., Bombay; M.S., Ph.D., North Carolina State

Kruglak, Haym, 1954, Professor of Physics  
B.A., M.A., Wisconsin; Ph.D., Minnesota

Kuenzi, W. David, 1964, Professor of Geology  
B.S., Washington State; M.S., Ph.D., Montana

Kukolich, Stephen L., 1965, Professor of Paper Science and Engineering  
B.S., Grinnel College; M.S., Ph.D., (Lawrence College) Institute of Paper Chemistry

Kusmiss, John H., 1965, Associate Professor of Physics  
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Kyser, Daniel A., 1947, Professor of Music  
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Laing, Robert A., 1970, Assistant Professor of Mathematics  
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B.S., M.Ed., Ed.D., Wayne State
Lamper, Neil, 1959, Associate Professor of Counseling and Personnel  
B.A., Calvin; M.A., Michigan; Ph.D., Michigan State  

Landis, Joseph B., 1969, Assistant Professor of Sociology  
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Large, Margaret S., 1949, Professor of Women's Physical Education  
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Larsen, Phillip T., 1970, Associate Professor of Natural Science  
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Lawrence, Elizabeth Ann, 1972, Associate Professor of Special Education  
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Lawrence, Jean McVay, 1959, Associate Professor of Biology  
B.A., Yankton; M.A., Wellesley; Ph.D., Northwestern  

Lawson, E. Thomas, 1961, Professor of Religion  
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Leader, Alan H., 1963, Professor of Management  
B.S., M.S., Rochester; D.B.A., Indiana  

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Lewis, Alice E., 1956, Associate Professor of Occupational Therapy  
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Lewis, David M., 1962, Professor of Sociology  
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Lex, Barbara W., 1970, Assistant Professor of Anthropology and Social Science  
B.A., M.A., Ph.D., Syracuse  

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, Assistant Professor of Marketing  
B.S., U.S., Naval Academy; M.S.E., M.B.A., Ph.D., Michigan  

Lloyd, Bruce A., 1967, Professor of Teacher Education  
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Loew, Cornelius, 1956, Dean, College of Arts and Sciences and Professor of Religion  
B.A., Elmhurst; B.D., S.T.M., Union Seminary; Ph.D., Columbia  

Loffler, Erika, 1971, Assistant Professor of Anthropology  
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Loffler, Reinhold L., 1967, Associate Professor of Anthropology  
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B.A., Michigan State; M.A., Northwestern; Ph.D., Michigan

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B.A., Keuka; B.S.L.S., Western Reserve; M.A., Western Michigan;
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MacDonald, Richard R., 1967, Assistant Professor of Sociology
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Malmstrom, Jean, 1948, Professor of English
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Malott, Richard W., 1966, Associate Professor of Psychology
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Mange, A., Edythe, 1949, Professor of History
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Mason, A. Thomas, 1972, Assistant Professor of Management
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Michael, John L., 1967, Professor of Psychology
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Mitchell, James L., Jr., 1964, Associate Professor of Accountancy
Graduate Faculty

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Mowen, Howard A., 1949, Professor of History
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Nagler, Robert C., 1956, Professor of Chemistry
B.S., William Penn; M.A., Missouri; Ph.D., Iowa

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Nantz, Donald W., 1952, Professor of Mechanical Engineering Technology
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Nelson, James D., 1970, Assistant Professor of Mathematics
B.S., M.S., Ph.D., Kentucky

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B.F.A., M.F.A., Drake

Neubig, Robert D., 1967, Professor of Accountancy
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Newell, Gale E., 1968, Associate Professor of Accountancy
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Nichols, Nathan L., 1955, Professor of Physics
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Nicolaou, Abraham W., 1970, Associate Professor of Special Education
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Nodel, Emanuel, 1961, Professor of History
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B.A., Ohio Wesleyan; M.A., Ph.D., Fletcher School of Law and Diplomacy

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Osborne, Charles E., 1957, Associate Professor of Music
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Osmun, George F., 1964, Professor of Classics
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Oswald, Robert M., 1971, Associate Professor of Counseling and Personnel
B.A., Temple; M.S., Ph.D., North Texas State

Otteson, Connor P., 1964, Professor of Marketing
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Pagel, Thomas F., 1970, Assistant Professor of Communication Arts and Sciences
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Palmatier, Robert A., 1955, Professor and Chairman, Department of Linguistics
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Passero, Richard, 1966, Associate Professor of Geology
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Pattison, Dale P., 1963, Associate Professor of History
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Peine, Hermann, 1971, Assistant Professor of Psychology
B.S., M.A., Ph.D., Utah

Petro, John W., 1961, Professor of Mathematics
B.A., M.S., Ph.D., Iowa

Phillips, Claude S., Jr., 1957, Professor of Political Science
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Phillips, John R., 1961, Associate Professor of English
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Pippen, Richard W., 1963, Associate Professor of Biology
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Plano, Jack C., 1952, Professor of Political Science
B.A., Ripon; M.A., Ph.D., Wisconsin

Ploughman, Theodore L., 1970, Associate Professor of Educational Leadership
B.S.E., M.S.E., I.E., Ph.D., Michigan

Poel, Robert, 1970, Associate Professor of Natural Science
B.A., Kalamazoo; M.A., Ph.D., Western Michigan
Powell, James H., 1955, Professor of Mathematics
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Pritchard, Michael S., 1968, Associate Professor of Philosophy
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Quandt, Eldor C., 1967, Assistant Professor of Geography
B.A., Valparaiso; M.S., Kansas State; Ph.D., Michigan State

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Quandt, Eldor C., 1967, Assistant Professor of Geography
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Raup, Henry A., 1960, Professor of Geography
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Ray, Harold L., 1960, Professor of Men's Physical Education;
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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
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Reish, Joseph G., 1972, Assistant Professor of French
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Rhodes, Curtis A., 1966, Associate Professor of Art
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Ricci, Robert J., 1968, Associate Professor of Music
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Conservatory of Music

Richardson, Geraldine, 1967, Assistant Professor of Occupational Therapy
B.S., Wisconsin; M.A., Western Michigan

Riegel, R. Hunt, 1973, Assistant Professor of Special Education
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Riley, James E., 1960, Associate Professor of Mathematics
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Risher, Charles G., 1958, Professor of Industrial Education
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Ritchie, William A., 1964, Associate Professor of Political Science
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Rittersdorf, Betty D., 1969, Assistant Professor of Blind Rehabilitation
B.A., Macalester; M.A., Western Michigan

Rizzo, John R., 1969, Professor of Management
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Robbert, Paul A., 1957, Professor of Art
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Robeck, George, 1968, Associate Professor of Communication
B.A., M.A., Pennsylvania State; Ph.D., Michigan State
Robert, Andre, 1971, Adjunct Professor of Biology
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Robertson, Malcolm H., 1961, Professor of Psychology
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Robin, Ellen P., 1970, Assistant Professor of Sociology
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Robin, Stanley S., 1965, Professor of Sociology and Director, Center for Sociological Research
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Robinson, Frank B., 1966, Professor and Head, Department of Speech Pathology and Audiology
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Rogers, Chester B., 1966, Assistant Professor of Political Science
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Ross, Martin H., 1966, Associate Professor of Sociology
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Ross, Myron H., 1961, Professor of Economics
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Rossi, Ernest E., 1966, Associate Professor of Political Science
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Sanders, Neill, 1969, Professor of Music
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Schaeberle, Frederick W., 1965, Associate Professor of Accountancy
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Schmaltz, Lloyd J., 1959, Professor of Geology
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Schmidt, Richard H., 1955, Professor of Psychology
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Schmitt, Peter, 1965, Associate Professor of History and Associate Director for Regional Historical Collections
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Shamu, Robert E., 1967, Professor of Physics
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Sheppard, John D., 1965, Associate Professor of Accountancy
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Siebert, Rudolf J., 1965, Professor of Religion
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Sievers, Gerald L., 1967, Associate Professor of Mathematics
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Simon, Kenneth, 1971, Associate Dean and Associate Professor
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Small, Thomas E., 1966, Associate Professor of English
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Smidchens, Uldis, 1968, Associate Professor of Teacher Education
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Smith, Herbert L., 1963, Associate Professor of Sociology
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Smith, Kathleen M., 1966, Associate Professor of English
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Smith, Robert Jack, 1963, Professor of Anthropology
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Straw, W. Thomas, 1968, Associate Professor and Acting Chairman,
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