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The Graduate College Bulletin: 1972-1973

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Bulletin

WESTERN MICHIGAN UNIVERSITY
KALAMAZOO, MICHIGAN

THE GRADUATE COLLEGE

COLLEGE YEAR 1972-73

Vol. 67, No. 3
April 1972

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Spring, 1972

Final Registration .................................. April 29, 1972
Classes Begin ...................................... May 1, 1972
Final Day to Add Classes ....................... See Spring Class Schedule
Final Day to Drop Classes ....................... See Spring Class Schedule
Diploma Applications Due for August
Commencement ..................................... May 12, 1972
Applications for Admission to Graduate College
Due for the Summer Session ....................... May 1, 1972
Memorial Day Recess ............................... May 29, 1972
Applications for Admission to Graduate College
Due for the Fall Semester ....................... July 1, 1972
Session Ends ....................................... June 21, 1972
Approved Theses, Projects and Dissertations Due in
Graduate Office for Summer Commencement .... August 4, 1972

Summer, 1972

Final Registration .................................. June 26, 1972
Classes Begin ...................................... June 28, 1972
Final Day to Add Classes ....................... See Summer Class Schedule
Final Day to Drop Classes ....................... See Summer Class Schedule
Independence Day Recess ......................... July 4, 1972
Approved Theses, Projects and Dissertations Due in
Graduate Office for Summer Commencement .... August 4, 1972
Session Ends ....................................... August 18, 1972
Commencement .......................... August 18, 1972
6:00 P.M.

Fall, 1972

Drop-Add Weekday (Administration Building) .... August 29, 1972
Classes Begin ...................................... August 30, 1972
Diploma Applications Due for December
Commencement ..................................... September 15, 1972
Applications for Admission to Graduate College
Due for Winter Semester ............................ November 1, 1972
Thanksgiving Day Recess Begins (Noon) ......... November 22, 1972
Classes Resume ..................................... November 27, 1972
Approved Theses, Projects and Dissertations Due in
Graduate Office for Fall Commencement ....... December 1, 1972
Semester Ends ...................................... December 16, 1972
Commencement ..................................... December 16, 1972
2:00 P.M.
Winter, 1973

Final Registration .............................................. January 3, 1973
Classes Begin ...................................................... January 4, 1973
Final Day to Drop Classes .................. See Winter Class Schedule
Final Day to Add Classes .................. See Winter Class Schedule
Diploma Applications Due for April
    Commencement ........................................... January 12, 1973
Applications for Admission to Graduate College
    Due for Spring Session ............................ March 1, 1973
Approved Theses, Projects and Dissertations Due in
    Graduate Office for Winter Commencement .... April 6, 1973
Semester Ends ................................................. April 21, 1973
Commencement ............................................... April 21, 1973
    2:00 P.M.

Spring, 1973

Final Registration ............................................. April 28, 1973
Classes Begin .................................................... April 30, 1973
Final Day to Add Classes .................. See Spring Class Schedule
Final Day to Drop Classes .................. See Spring Class Schedule
Diploma Applications Due for August
    Commencement ........................................... May 11, 1973
Applications for Admission to Graduate College
    Due for the Summer Session ....................... May 1, 1973
Memorial Day Recess ........................................ May 28, 1973
Applications for Admission to Graduate College
    Due for the Fall Semester ........................ July 1, 1973
Session Ends .................................................. June 20, 1973
Approved Theses, Projects and Dissertations Due in
    Graduate Office for Summer Commencement .... August 3, 1973

Summer, 1973

Final Registration ............................................. June 25, 1973
Classes Begin .................................................... June 27, 1973
Final Day to Add Classes .................. See Summer Class Schedule
Final Day to Drop Classes .................. See Summer Class Schedule
Independence Day Recess ................................. July 4, 1973
Approved Theses, Projects and Dissertations Due in
    Graduate Office for Summer Commencement .... August 3, 1973
Session Ends .................................................. August 17, 1973
Commencement ............................................... August 17, 1973
    6:00 P.M.
BOARD OF TRUSTEES

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Maury Lyon Parfet
Dr. Julius Franks, Jr., Grand Rapids
Philip N. Watterson, Cascade
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James W. Miller

Term Expires
December 31, 1972
December 31, 1972
December 31, 1974
December 31, 1974
December 31, 1976
December 31, 1976
December 31, 1978
December 31, 1978

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Peter R. Ellis, Secretary
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Administration

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Russell H. Seibert, Ph.D., Vice President, Academic Affairs
John H. Stroupe, Ph.D., Department of English
Betty Taylor, Ph.D., Department of Home Economics
Leo Zabinski, Graduate Student
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, 1971, was 21,846 with 3,084 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-seven Master's degree pro-
grams. Master of Arts degrees are awarded in twenty-five pro-
grams in the following general categories within the College of
Education: Educational Leadership, Counseling-Personnel, Special
Education, Blind Rehabilitation, Audiovisual Media, Teaching the
Economically and Educationally Disadvantaged, Teaching of
Reading, Teaching in the Community College, and Curricula in
Teaching. Twenty-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 Eco-
nomics, International and Area Studies, Modern and Classical
Languages, Mathematics, Medieval Studies, Occupational Thera-
py, Physics, Political Science, Psychology, Sociology, and Speech
Pathology and Audiology. The University also offers the Master of
Science degree in Accountancy, Business, Computer Science, Li-
brarianship, Paper Science and Engineering, Technology, and Sta-
tistics, as well as the Master of Business Administration, Master of
Fine Arts, Master of Music, Master of Occupational Therapy, and
Master of Social Work degrees.

In 1960 programs leading to the Specialist in Education de-
gree 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 Educa-
tion, English, History, International and Area Studies, Librar-
ianship, Mathematics, and Science Education.

Doctoral programs were initiated in 1966 and were fully ac-
credited 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 pro-
gram leading to the Doctor of Education degree is offered by the
Departments of Educational Leadership and Counseling-
Personnel.
SECTION 1

General Policies and Procedures

ADMISSION — DATES

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

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

A foreign student must apply for admission by March 15 for the fall semester and September 15 for the winter semester.

When a student registers and attends classes during the semester or session for which he makes initial application, he will have current admission for one year following, and is eligible for registration at any time without applying for re-entry.

When a student has current admission status and has been attending classes on or off campus, he will retain that status as long as he has attended classes within the past year.

When a student does not register and does not attend classes for the semester or session to which he has been admitted, his admission is no longer valid. Admission may be reactivated by completing a re-entry application at least one month before registering for classes. When a student plans to continue attending classes after receiving a degree, application for re-entry is required.

ADMISSION — TYPES

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

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

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

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

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

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

7. Admission as Guest Matriculant. A student who is already enrolled in the Gradu-
ate School of another college or university may enroll for courses at Western
Michigan University as a Guest Matriculant. Application forms for such admission
are available at The Graduate College.

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

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

ADMISSION — APPLICATION FEE

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

8
ADMISSION — PROCEDURES

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

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

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

3. Return the “Application for Admission” and the $10 application fee before the published deadlines for admission.

4. Request the Registrar of each college previously attended, except Western Michigan University, to send a transcript of credits to The Graduate College, Western Michigan University. Transcripts also are due before the established deadline date for admission.

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

ADMISSION — FOREIGN STUDENTS

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

GRADING SYSTEM

Changes in the grading system are being considered by the Graduate Studies Council as this Bulletin goes to press. At present, grades are indicated by letters, to each of which is assigned a certain value in honor points per hour of credit, as shown in the table below:

<table>
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<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>E</td>
<td>Failure</td>
<td>0</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Withdrawn</td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>Credit</td>
<td></td>
</tr>
<tr>
<td>NC</td>
<td>No Credit</td>
<td></td>
</tr>
</tbody>
</table>
General Policies and Procedures

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

"I" - Incomplete - This is a temporary grade given for work which is passing in quality but lacking in quantity to meet course objectives. It is assigned when an instructor, in consultation with a student, concludes that extenuating circumstances prevent the completion of course requirements. Incompletes, (except those given in Masters' theses, Specialists' projects, Doctors' dissertations, and courses directly related to them), which are not removed within one calendar year will remain part of the student's permanent record.

"W" - Withdrawn - 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 or no credit system will be used in Graduate Studies 712, Professional Field Experience and 730, Doctoral Dissertation. Accordingly, the permanent record will indicate "CR" when the course is passed and "NC" when the course is incomplete or failed.

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

HONOR POINTS

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

COURSE NUMBERING SYSTEM

Two types of courses are offered in The Graduate College: (1) Those numbered 600 and above open only to graduate students, and (2) those numbered 500 through 599 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. The student should consult the Schedule of Classes for hours, days of week and place of meeting for all classes.

In certain instances, an adviser may permit a student to include up to 6 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. Such courses are outside the student's major and earn undergraduate credit.
REGISTRATION

Registration will be held on the dates listed 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.

CHANGES IN ENROLLMENT

Any changes in a student’s schedule must be made in accordance with the procedures announced in the Schedule of Classes. A student may drop graduate courses through the midpoint of each semester and session.

STUDENT LOAD

1. The normal load for a graduate student devoting full time to graduate study is three or four courses (9–13 hours).
2. The normal load for a graduate student during the spring and summer sessions is two courses (5–8 hours).
3. A student who is employed should reduce his load accordingly. The normal load for a student employed full time is one course per semester or session. The normal load for a student with a Graduate Assistantship, Program Fellowship and Associateship is two or three courses (6–9 hours).

STUDENT ACADEMIC RIGHTS

1. Introduction

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

A. In the Classroom

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

B. Protection Against Improper Academic Evaluation

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

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

II. Policies and Procedures

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

B. Procedures for Reviewing Student Grievances Related to Grading

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

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

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

4. If the student is still dissatisfied after seeing the department chairman or head, the student should next see the University Ombudsman. The function of the ombudsman in this situation would be to collect 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 or credit or no credit, or (d) any other grade used by the Records Office.

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

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

9. Occasions do occur when a faculty member or an administrative official
Genera! Policies and Procedures

...may wish to question a grade or a grade change. In such instances, these procedures, beginning with review by the ombudsman, shall be available to them.

C. Policies and Procedures Regarding Requirements

(1) All students who seek advice on academic requirements will be provided written copies of their academic advisors’ recommendations and students will not be held responsible for errors made by their advisors. This section is not to be interpreted to mean that the student is relieved of the responsibility of meeting the total graduation requirements stated in the Catalog in force at the time he 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.

STUDENT FEES

The following fee schedule will be used for graduate study:

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

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

Any graduate student who has previously registered for and received a grade of “Incomplete” for Masters Thesis, Specialist Project and/or Doctoral Dissertation and who wishes to use the services of university staff and facilities to complete the work necessary to remove the “Incomplete” must, if he is not otherwise enrolled, pay a student fee of $25 for the semester involved or $12.50 for a session.

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 must be cleared with the
General Policies and Procedures

Graduate Office. Complete withdrawals must also be cleared 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 hour 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 per cent 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.

GRADUATION FEE: Graduation Fee due and payable at the time the diploma request is filed with the Bursar’s Office—$10.00 per degree.

CONTINUING EDUCATION FEE: Off-campus and correspondence classes—$30 per semester (Subject to change).

NOTE: The refund date will normally be determined by the date that the Records Office receives a completed Withdrawal Request card or Application for Change in Enrollment Form.

RESIDENCY

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

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

2. A person who has attained the age of majority at the time of registration in the institution and who has resided in this state six months next preceding the date of registration without being registered at a college or university during that period is deemed a resident of this state for the purpose of such registration.

3. The residence of a wife follows that of her husband, except that a woman student who is a resident under paragraph 1 or 2 may continue to register as a resident of this state although subsequently marrying a non-resident.

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

5. A person in the service of the United States, and his wife or minor children, who have met the six months residence requirements in paragraph 2, may register as residents of this state.
6. An alien lawfully admitted for permanent residence in the United States and who has obtained his permanent visa, and his wife or minor children, who have met the other requirements herein for residence, may register as residents of this state.

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

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

FINANCIAL ASSISTANCE

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

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

2—Program Fellowships of approximately $3,000 are available to students in special programs. They are provided to students from minority groups and to students in certain emerging programs. Program Fellows are expected to participate in approximately 15 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—Associateships of approximately $4,000 are offered to graduate students enrolled in advanced degree programs beyond the Master’s degree. Associates are required to participate in approximately 15 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.

4—Graduate Assistantships of approximately $2,900 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 15 to 20 hours per week.

5—Other Available Programs: The following loan programs are available to graduate students: National Defense Student Loan, Guaranteed Student Loan, short term loans, as well as the College Aid Plan and the Tuition Payment Plan.

Employment opportunities are available through the College Work-Study Program, regular University employment and off-campus positions.

For specific information contact the Office of Student Financial Aid.
UNIVERSITY SERVICES

Housing: Information on residence-halls, married student apartments, and off-campus accommodations may be secured by writing to the Housing Office, Student Services Building. Foreign students should request assistance from the Foreign Student Adviser.

Students desiring information should contact the Housing Office as early as possible.

Testing Service: The services of the Testing Center are open to all graduate students and their families. Interest Inventories, Aptitude Test Batteries, Personality Measurements and Achievement Tests are available. All these different instruments are administered and interpreted at little cost to the student. The Testing Service will help with career planning.

Testing Services has the largest file of tests in Southwestern Michigan. These files are available to students for their various projects at no cost to the student. Staff members are available to the student for planning on research projects and data collection. The IBM forms that are used by faculty members for their research projects are free to students and the processing of the sheets is also free.

Counseling Service: 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.

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, X-rays, laboratory examinations, inpatient care, repairing lacerations, 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 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 as scheduled by his family physician. The allergy vaccine is then administered by a nurse and can be given only when a doctor is in attendance.

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

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

To cover some of the medical expenses which may be incurred, it is strongly recommended that 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.
Master's Degree Requirements

SECTION II

Master's Degree Programs and Requirements

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

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

GENERAL REQUIREMENTS FOR A MASTER’S DEGREE

1. Admission—(See Calendar of Events for application deadline.)
   a. Bachelor’s degree.
   b. Transcripts of all courses taken beyond high school.
   c. A point-hour ratio of at least 2.6 (A=4) in the credits completed in the last two years of undergraduate work.
   d. Attainment of a satisfactory score on the English qualifying examination. A non-credit English course must be passed by students failing the English qualifying 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 during the first semester or session of enrollment.
   b. Reservations indicated on the program and the certificate of admission must be removed before candidacy will be approved.
   c. A point-hour ratio of at least 3.0 (A=4) must be secured in all courses taken on campus. A 3.0 overall average is also required. Honor point deficiencies acquired in on-campus credits cannot be made up by credits earned at another university or by extension.

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

      A diploma application must be submitted no later than three months prior to
Master's Degree Requirements

Commencement. Three Commencements are held per year: April, August, and December.

b. Minimum Credit Hours

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

c. Residence Credit

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

d. Point-hour Ratio

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

e. Hours After Candidacy

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

f. Transfer Credit

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

1) The credits were earned in institutions accredited for graduate study and are of B grade or better. The student’s average for all graduate work taken at another institution must also be B or better.
2) The Graduate College approves the credits for transfer.
3) The student’s adviser verifies that the credits contribute to the student’s program of study.

g. Time Limit

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

h. Thesis

A student writing a thesis 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 every one of the usual requirements for a Master’s degree.

PROGRAMS LEADING TO THE MASTER’S DEGREE

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. His knowledge and understanding of the theory, literature, controversial concepts and professional practice of accounting is developed as well as his ability to carry out research. The student’s understanding of the relationship of accounting to other fields in business and to other disciplines is also stressed.

Specific requirements for the M.S. degree are a minimum of 21 semester hours of graduate work. At least 20 graduate credits must be earned in work numbered 600 or above. It is expected that a minimum of 21 semester hours of the total degree requirements will be in accounting. However, in special cases, a closely related course offered by another department may be substituted as part of the program. In addition to the Accountancy major requirements, the student must complete a minor of six to nine credits outside of the Department of Accountancy.

Admission requirements, program prerequisites and residence requirements are the same as for the MBA program (see pages 23–24).

Anthropology

William Garland, Robert Jack Smith, Advisers

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), linguistics, and physical anthropology.

Eligibility for Admission

1. Students should have completed a minimum of 15 semester hours in undergraduate work in Anthropology, or 24 hours in Anthropology and related disciplines, such as Geology, Zoology, and the Social Sciences, of which at least 9 hours must be in Anthropology.

2. Accumulation, during the final two years of undergraduate work, of a point-hour ratio of at least 3.0.
3. Students are required to have completed at least three semester hours of statistics. This requirement can be satisfied by the student’s undergraduate program.

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

5. Three letters of recommendation are required from persons able to assess the applicant’s academic record, potential for success in a Master of Arts degree program in Anthropology, and suitability for an assistantship in this discipline.

Degree Requirements

1. Complete at least thirty semester hours, selected in consultation with the Master’s 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 thesis.

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


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

ART

Charles E. Meyer, Harry S. Hefner, Advisers

MASTER OF ARTS IN ART

The Master of Arts degree program in Art has two possible emphases. The first is in art education, the second in 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 the first. 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 second.

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 semesters. Applicants are urged to make application before October for Winter consideration, and before March for Fall consideration.

Admission considerations for the MA in Art.

1. Admission to WMU’s Graduate College.

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

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

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

5. A statement of intent indicating the area of emphasis a student would elect, and his 7 hour area of election is required with the portfolio. The naming of faculty with whom a student would like to work is helpful.
Master's Degree Programs

Requirements for the MA in Art with emphasis in either Art Education or Art Practice:

1. 12 hours of art courses from one of the following areas: painting, sculpture, weaving, printmaking, jewelry or graphic design.

2. 6 hours in advanced art history.

3. 2 hours in the graduate seminar in art.

4. Adviser's approval for all course work elected.

5. A review of work by a Master's degree committee before the end of the first semester, or its equivalent.

6. Another review before the end of the last semester, or its equivalent.

7. Submission of a portfolio of major work, in photographs, during the final semester.

8. A show of work in the final semester, from which one work will be selected for the department's permanent collection.

Special requirements for the two emphases are:

With an Emphasis in Art Education (Minimum total hours of credit – 36)

1. 9 hours in advanced art education courses.

2. 7 hours in art practice areas apart from those selected above, or in approved cognates.

3. A final paper or thesis.

With an Emphasis in Art Practice (Minimum total hours of credit – 30)

1. 7 hours in art practice areas apart from the above selected areas, or in art history.

2. 3 hours in cognates approved by the departmental adviser.

3. An oral defense of the final semester's show of work before the MA committee.

MASTER OF FINE ARTS

The Master of Fine Arts is the recommended terminal degree for practicing artists and for university art teachers. 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. WMU's 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 considerations for the MFA in Art:

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

Requirements for the MFA:
1. Advisor's approval for all course work elected.
2. 24 hours of art courses from one of the following areas: painting, sculpture, textile design, jewelry, graphic design, ceramics, prints.
3. 12 hours in art electives or art history.
4. 9 hours in art history.
5. 2 hours in the graduate seminar in Art.
6. 6 hours in courses outside the Art department.
7. A review of work by a master's committee before the end of the 1st semester, or its equivalent.
8. Another review before end of third semester or equivalent.
9. 2 hours in Art 613. Graduating Presentation.
10. 5 hours in free electives, in or out of Art.
11. Final portfolio.

Biology

The Master of Arts degree program in Biology provides a general background in the field with specialization in the area of the student's major interest. It is designed to meet the needs of people in teaching, research, laboratory and field work, and conservation. It may be used as a foundation for continued graduate work leading to a doctor's degree at another institution, or may be considered terminal.

To satisfy the requirements for a Master's degree in Biology, a student must successfully complete a minimum of 30 hours of graduate work in Biology and related areas. The choice of courses will be made with the recommendation of the student's advisory committee and must be related to the student's goals.

A thesis must be prepared under the direction of the advisory committee. The chairman of the student's advisory committee will be a member of the graduate faculty having competence in the area of the student's major interest. Specialization is permitted in most of the major areas of Biology.

Business

The Master of Business Administration degree program is designed to meet the need for well trained generalists and specialists for leadership roles in business, industrial, financial and all levels of governmental organizations. It is a professional degree program which aims to develop in the participants a background and working level of skills, knowledge and attitudes which will prepare them for responsibilities in decision making. The program is so designed that it can meet the professional developmental needs of students with baccalaureate degrees in such areas as liberal
Master's Degree Programs

arts, sciences, engineering, or other fields as well as those having an undergraduate major in business. Under the guidance of the graduate staff of the College of Business, the participant is provided personal programming in the selection and arrangement of his courses.

The MBA degree is earned by the completion of a program approved by the candidate's graduate advisor. The program consists of prerequisites, MBA core courses, and area of concentration and electives.

**Prerequisites.** These include coursework in Accounting, Economics, Finance, Law, Management, Marketing, and Statistics. This requirement may be satisfied by (1) waiver (in case of prior completion of appropriate undergraduate courses—BBA core courses or equivalent); (2) examination; or (3) by taking 505 Administrative Accounting (or 210, 211 Principles of Accounting), 201, 202 Principles of Economics, 320 Business Finance, 340 Legal Environment, 300 Management Fundamentals, 370 Marketing and 200 Statistics.

**MBA Core.** The Core consists of the following: 600 Applied Economics for Management, 607 Legal Controls, 607 Accounting Control and Analysis, 608 Financial Management, 607 Management Analysis and Practice and 607 Marketing Management.

**MBA Concentration.** An area of concentration may be selected from Accountancy, Economics, Finance, General Business, Management or Marketing. Usually this consists of three to five courses in an area (in addition to the MBA core). However, at least 15 hours of credit must be taken outside the area of concentration.

The total program requires, in addition to the prerequisites, a minimum of 30 hours of coursework or 24 hours and a thesis.

**Admission Requirements.** In addition to the English usage exam required by the Graduate College, MBA applicants must submit scores for the Admission Test for Graduate Study in Business prior to consideration for admission to the program.

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

**On-Campus Requirement.** Ten semester hours of coursework must be taken on campus.

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**MASTER OF SCIENCE IN BUSINESS**

The Master of Science program permits the student to specialize in a specific area of business such as Accountancy (See p. 20), 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. The general requirements for the degree are:

1. Regular admission by The Graduate College.
2. An undergraduate grade point average specified by the department. This may be above The Graduate College minimum requirements.
3. Scores for the Admission Test for Graduate Study in Business which are acceptable to the department offering the program.
4. Coursework as specified by the department within the following limits:
   a) Prerequisites: These include coursework or its equivalent in Accounting, Economics, Finance, Law, Management, Marketing and Statistics.
b) Additional prerequisites may be specified by the department depending on the particular program (e.g. preparation in mathematics, behavioral science, computer programming, etc.).

c) A cognate area or specified electives of a minimum of nine semester hours.

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

Chemistry

The Master of Arts degree program in Chemistry is planned to provide a broad background in the various fields of chemistry with concentration in one.

Entrance requirements include admission to The Graduate College and the attainment of a satisfactory grade in qualifying examinations covering the fields of Analytical, Organic, and Physical Chemistry.

These examinations must be taken on the following dates:

- August 25, 1972 - 9:00 a.m. – Analytical; 1:00 p.m. – Organic
- August 26, 1972 - 9:00 a.m. – Physical
- January 2, 1973 – Any
- April 27, 1973 – Any
- June 22, 1973 – Any
- August 23, 1973 - 9:00 a.m. – Analytical; 1:00 p.m. – Organic
- August 24, 1973 - 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 thesis, and six to ten hours in a related field or fields. A final oral examination by the student’s graduate committee is a requirement for the degree. 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 thesis: Analytical, Biochemistry, Inorganic, Organic and Physical.
2. 520 – Instrumental Methods in Chemistry.
3. 505 – Chemical Literature.
4. 601 – Graduate Seminar. (Attendance required every semester)
5. Thesis. (6 hours)

Communication Arts and Sciences

The Master of Arts degree in Communication Arts and Sciences is intended
Master's Degree Programs

either for students wishing a terminal degree or for students intending to continue 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: speech education, mass media, 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. Thesis is optional.

Computer Science

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

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

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

Each student must complete an approved program of 30 hours of graduate work including
1. Mathematics 507, 530, 571
2. 12 hours of computer science courses selected from Mathematics 508, 606, 607, 680, 681, 682
3. 9 hours of advanced computer applications selected from Mathematics 608, 609, 562, 662, ENGT 646, MGMT 630, and Graduate Studies 712.
Masler's Degree Programs

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

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.

Entrance requirements include admission into The Graduate College, completion of 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.

A minimum of 30 hours is required for the degree including:

2. Seminar in Earth Science each semester in residence.
3. Independent Research (4-6 hours). Topic to be chosen by student with approval of adviser.
4. Thirteen hours of electives in earth science or related disciplines with consent of graduate adviser.
5. An exploratory written examination during the first week of residence and a final comprehensive oral examination. Failure of the final oral comprehensive examination may be followed by a second oral or a written examination.

Economics  
Robert S. Bowers, Adviser

To earn the Master of Arts degree in Economics, the following departmental requirements must be met:

1. For admission to candidacy, satisfactory completion, at the graduate and/or undergraduate levels, of a total of 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.
2. A program of 30 hours of graduate credit (33 hours if additional courses are
submitted in lieu of the thesis) is to be approved by the major adviser and the department head and is to include the following courses:

a. 603 Advanced Price Theory  
b. 606 Seminar in the Evolution of Economic Thought  
c. 662 National Income Analysis

3. Pass written and oral comprehensive examinations.

4. The election of either 30 hours (with thesis) or 33 hours (no thesis) is to be made in consultation with the major adviser and the department head.

Education

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

The programs in Teaching in the Community College, Teaching the Economically and Educationally Disadvantaged, Teaching of Reading, and Audiovisual Media are offered by the Department of Teacher Education in collaboration with a number of departments in the Colleges of Applied Sciences, Business, Education and Arts and Sciences.

The Master's programs in Blind Rehabilitation are provided by the Institute of Blind Rehabilitation.

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

The exceptions are:

1. The fifteen hours of undergraduate preparation in professional education is not required of those interested in leadership positions in higher education and those who enter the curriculum Program Leadership in the Department of Educational Leadership. (See Curricula Provided by the Department of Educational Leadership.)

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

CURRICULA PROVIDED BY THE DEPARTMENT OF TEACHER EDUCATION AND COOPERATING DEPARTMENTS

Master of Arts degree programs are intended to prepare teachers for superior classroom performance and a deeper understanding of their roles as teachers in the American system of education.
Master's Degree Programs

Audiovisual Media

Advisers: David H. Curl, Kenneth E. Dickie

The Master's Degree program in Audiovisual Media is designed to provide teachers and supervisory personnel with competencies in organizing, implementing and managing instructional resources and technology.

Requirements for the degree are:

1. TEED 548 Fundamentals of Audiovisual Media and TEED 549 Basic Production of Audiovisual Materials or equivalent transfer courses taken before entering the Master's Degree program.

2. At least thirty hours of graduate credit in professional education, audiovisual and cognate fields distributed as follows:

3. Nine hours of professional education courses including TEED 601 Introduction to Research, TEED 603 Social and Philosophical Foundations or TEED 604 Psychological Foundations of Education, and a course in curriculum at the appropriate level.

4. Sixteen hours or more in the major field including courses in educational technology, leadership and management, and library science.

5. Five or six hours of approved courses elected from areas other than Education.

Teaching the Economically and Educationally Disadvantaged

Advisers: George Miller, Jess M. Walker

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 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 Ed. 560, Practicum: Sociological and Psychological Foundations of Teaching the Disadvantaged; Ed. 601, Introduction to Research in Education; Ed. 659, Seminar, Methods and Techniques for Teaching the Disadvantaged; and Graduate Studies 712, Professional Field Experience.

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

Teaching in the Community College

Advisers: Owen Middleton, Cameron Lambe, William Kanzler

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

1. Seven hours made up of the following professional courses: Education 601, Introduction to Research; 650, Characteristics of the College Age Student; and 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 advisor.

Teaching of Reading

Advisers: Dorothy J. McGinnis, Joe Chapel

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: Education 601 (required), Introduction to Educational Research; 602, School Curriculum; or 510, The Elementary Curriculum, or 622, Junior High School Curriculum and Instruction; 603, Social and Philosophical Foundations of Education, and 604, Psychological Foundations of Education.

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

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 four three-hour courses in the Education core:
   a) 601 Introduction to Educational Research
   b) 602 School Curriculum (Students enrolled in Teaching in the Junior High School, or are teaching or planning to teach in the Junior High School should substitute T.Ed. 622 for T.Ed. 602.)
   c) 603 Social and Philosophical Foundations of Education
   d) 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:
Master's Degree Programs

Teaching in the Elementary School

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

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

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

Teaching of Distributive Education
Adviser: Adrian Trimpe
Prerequisite: Must qualify for a vocational certificate as a coordinator

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

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

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

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

Teaching of Physical Education
Advisers: Women — Billye A. Cheatum; Men — George G. Dales
Prerequisite: Minor in Physical Education

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

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

Teaching of Social Sciences
Adviser: William S. Fox
Master's Degree Programs

Prerequisite: Twenty-five hours in combined fields of economics, history, philosophy, political science and sociology

Teaching of General Speech
Adviser: Zack L. York
Prerequisite: Minor in speech with suitable cognates

CURRICULA PROVIDED BY THE DEPARTMENT OF EDUCATIONAL LEADERSHIP

Advisers: Harold W. Boles, William D. Coats, James A. Davenport, Dorothy McCuskey, Gerald C. Martin, Ted Ploughman, William P. Viall, 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 noninstructional in nature. In view of the fact that a student who earns this degree may wish later to work toward a further degree, a student who selects an M.A. curriculum should consider the requirements of the advanced degree in making this selection.

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

| 8 a – 13 S.H. in | ADMINISTRATION AND SUPERVISION |
| 8 a – 11 S.H. in | HUMAN RELATIONS |
| 6 – 9 a S.H. in | CONCEPT FORMATION |
| 3 – 5 S.H. in | RESEARCH |
| 0 – 3 S.H. in | INDEPENDENT STUDY |

30 S.H. minimum Total

At least 9 S.H. of the minimum of 30 S.H. must be outside the College of Education. (See Section I, Degree Requirements for General Requirements for a Master's Degree.)

Curricula available within this degree program include:

Line Administration—intended to prepare a person for a position as a principle 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 6 S.H. in each of the Administration and Supervision and Human Relations areas and a maximum of 15 S.H. in Concept Formation.
CURRICULA PROVIDED BY THE DEPARTMENT OF COUNSELING AND PERSONNEL


The degree of Master of Arts, with a major in Counseling and Personnel, is designed to prepare individuals for positions in counseling and personnel work in both educational and non-educational settings. Specialization is possible in Elementary, Secondary and Higher Education, the Disadvantaged, and Counseling in Agencies.

Following the acceptance by The Graduate College and the Department of Counseling and Personnel, each student will be assigned to an adviser who will assist him in constructing a degree program consistent with his vocational goal and educational background. Program development must be completed not later than the first semester or session of his enrollment.

The curriculum for Counseling and Personnel requires the following:

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

2. A minimum of six hours of cognate courses in Sociology and Psychology.

3. Eighteen hours in the major area, consisting of 680, The Personnel Worker and His Role, 4 hours; 681, Organization and Administration of Student Personnel Services, 4 hours; 682, Research in Counseling and Personnel, 4 hours; and 683, Theory and Laboratory Practice in Counseling, 4 hours; and 684, Supervised Practicum and Professional Experiences, 4 hours; and 582, Information Service in Guidance, 2 hours.

4. Up to ten additional hours of course work, depending upon educational background and vocational objective. Elementary School Guidance majors are required to elect Education 584, Elementary School Guidance, Education 695, Student Personnel Services in Higher Education, is required of students in the Higher Education Personnel Curriculum.

During the student’s matriculation through the Master of Arts curriculum, there will be a continuing process of evaluation. The process includes candidacy (after ten hours of course work) and review of student’s status in the event less than a “B” is received in any of the courses in the professional sequence.

CURRICULA PROVIDED BY THE DEPARTMENT OF SPECIAL EDUCATION

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

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

Prerequisites:

(1) Michigan Teaching Certificate or equivalent.
Master's Degree Programs

(2) A minimum of one year of successful teaching experience.

(3) A point-hour ratio of at least 2.6 during the last 60 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 in Special Education is designed for the following:

1. Experienced regular classroom teachers interested in obtaining approval to teach mentally handicapped, emotionally disturbed or crippled and home-bound 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 advisor. Prerequisite courses which are to be completed prior to admission to the graduate degree program include the following:

   Teacher Education 312 – Teaching of Reading
   Special Education 530 – Education of Exceptional Children
   Special Education 588 – Behavior Disorders in School-Aged Children
   Special Education 533 – Diagnostic and Prescriptive Techniques in Special Education
   Special Education 534 – Curricular and Instructional Provisions for Exceptional Children and Youth

   and, one of the following

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

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

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

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

1. A minimum of 30 hours of graduate level work, 15 of which must be in Special Education.

2. Six hours of core courses in Education, including 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 20 semester hours. Responsibility for scheduling this examination is to be assumed by the graduate student after consulting with the program advisor.

CURRICULA PROVIDED BY THE INSTITUTE OF BLIND REHABILITATION

Western Michigan University, in cooperation with the Social and Rehabilitation Services, Office of Health, Education, and Welfare, is offering the following graduate programs in Blind Rehabilitation:

Orientation and Mobility Specialist
Advisers: Donald Blasch, Stanley Suterko

The purpose of an Orientation and Mobility Specialist is to teach blind persons to move about effectively, efficiently, safely and gracefully in familiar and unfamiliar environments. An essential part of the habilitation and rehabilitation of the visually handicapped is to teach them to utilize more effectively their remaining sensory systems.

Students will be selected for this program on the basis of demonstrated mature judgment, emotional stability, leadership qualities, and good academic ability. They should have completed their bachelor's degree with a major in the behavioral sciences. They must be in good physical health and have normal or correctable vision to approximately 20/20.

The program requires three semesters for completion. 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 on an individual basis. The third semester will involve an internship at one of the following: Veterans Administration Hospital, Hines, Illinois; a residential school, public schools, or an accredited agency for the blind. Here the trainees receive clinical training and practicum in orientation and mobility. The successful completion of 36 semester hours is required to earn the degree of Master of Arts.

Rehabilitation Teachers of the Adult Blind
Advisers: Ruth Kaarela, Donald Blasch

The clinical training of Rehabilitation Teachers prepares students to teach blind adults personal management, skills in communication, home making and leisure time activities.

The prerequisite for admission is a bachelor's degree from an accredited college or university with a major in the behavioral sciences. Successful completion of 42 semester hours of graduate credit is required for the Master's degree. Thirty-one hours will be earned during two semesters and one session of academic work on the campus. Ten hours will be earned in supervised internship and residency during one session and one semester at accredited agencies for the blind. A professional paper is also required.

English
Adviser: John H. Stroupe

The Master of Arts degree program in English provides at an advanced level a study of the history of literature, the history and characteristics of the genres, literary theory, and literary process in the works of a major author. Those desiring
to enter the program should present a 30-hour undergraduate major with a grade-point average of 3.0. At least 20 hours of the major must be in courses in literature; no more than 15 of the 30 should be at the freshman-sophomore level. Students should consult with the adviser at the earliest opportunity concerning their schedule of study, which will include where possible a concentration in some field as well as courses that meet the objectives of the program.

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

**Geography**

Oscar H. Horst, Adviser

To earn a Master of Arts degree in Geography, a student must satisfy the following departmental requirements:

1. 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.

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

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

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

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

6. Completion of required courses: Geography 568, 661, and 664.

7. Completion of at least two courses with a maximum of 10 hours in one of the six following areas of concentration: Regional; Economic; Urban; Cultural-Historical; Political; and Physical Geography.

**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. Requirements for the degree are:

36
1. Undergraduate degree with major in geology (consideration of other preparation handled on an individual basis).

2. At least 24 semester hours of course work, not including the departmental seminar. Up to 6-9 hours may be outside the department (in science and mathematics as approved by the graduate adviser).

3. The departmental seminar (Geol. 660) must be taken each semester in residence.

4. Satisfactory completion of a thesis (6 cr. hrs.)

5. Pass a comprehensive oral examination.

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**History**

Lewis H. Carlson, H. Nicholas Hamner, Advisers

To earn the Master of Arts degree in History, a student must satisfy the following requirements:

1. For admission to the department for graduate study, either (a) completion of thirty hours of undergraduate credit in the social sciences and closely related subjects, including at least fifteen hours of history, or (b) possession of other preparation accepted as the equivalent by the departmental committee.

2. Complete History 690 (Historical Method) and History 692 (Studies in Historical Literature).

3. 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.

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

5. Earn 30 hours of graduate credit, of which at least 20 hours must be in history, and the remainder in a department approved by the graduate adviser.

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

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**Home Economics**

Frances J. Parker, Adviser

The degree of Master of Arts program in Home Economics is designed for the person with a Bachelor of Science or Arts in Home Economics. The Master's degree work is planned to provide a general program of studies in the whole area of...
Master's Degree Programs

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.

In addition to The Graduate College admission requirements, the student must:

1. Choose 8-10 hours in a minimum of 3 courses in the basic courses selected from:
   - 500 Advanced Textiles ........................................ 2 s.h.
   - 510 Advanced Nutrition ........................................ 3 s.h.
   - 518 Advanced and Experimental Foods ......................... 4 s.h.
   - 520 Equipment ................................................... 3 s.h.
   or
   - 650 Advanced Home Management ................................. 2 s.h.
   - 600 Clothing Techniques ......................................... 2 s.h.
   - 652 Family Life Education ....................................... 2 s.h.

2. Complete a total of twenty (20) hours of work in Home Economics at the graduate level including a minimum of 2 hours of Seminar credit;

3. Complete a minimum of ten (10) hours of work at the graduate level in allied areas; e.g., Sociology, Psychology, Economics, Biology, Chemistry, Education, Art.

This 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.

International and Area Studies

Mona J. Green, Chairman of Advisers

The Master of Arts (M.A.) degree program offered by the Institute of International and Area Studies provides great flexibility for students who desire graduate-level training in either Area Studies or Comparative/Cross-Cultural Studies. The program is interdisciplinary in scope and can be geared to meet the needs of students preparing for (1) teaching careers, (2) posts in governmental or international agencies, (3) positions in international trade or with corporations having overseas operations, and (4) advanced graduate study leading to terminal degrees in the social sciences, international studies, or area studies.
Several fields of specialization are possible within this program. They are:

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

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

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

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

Students who contemplate later Ph.D.-level study in a traditional discipline will be advised to obtain a disciplinary concentration in the field of their choice. In certain cases students with severely limited undergraduate preparation in a discipline may be advised to take a disciplinary M.A., with limited cognate work in Comparative/Cross-Cultural or Area Studies.

Acquisition of foreign language and other research skills is strongly recommended for those students planning later doctoral-level study.

**Modern and Classical Languages**

*Roger L. Cole, Chairman of Advisers*

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

1. Undergraduate major or 30 hours or equivalent in Foreign Language.

2. 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 thesis. Furthermore, a maximum of ten hours of graduate study may be applied in appropriate cognate fields. Selection of cognate courses is made by the adviser after determination of the candidate’s specific needs and interest.

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

**Librarianship**

*Jean E. Lowrie, Adviser*

The program of the School of Librarianship is accredited by the American
Master's Degree Programs

Library Association and the School is a member of the Association of American Library Schools. The graduate program involves studies in the five major areas of library science; (1) history, philosophy and background of libraries; (2) technical processes; (3) library resources; (4) library clientele; (5) library organization and administration. The program prepares candidates for service in college or university, school, public and special libraries. In addition to the general admission requirements, the student must:

1. Give evidence of ability to do graduate work in library science.
2. Present a reading knowledge of at least one modern foreign language. This requirement may be met either by completing one academic year of study at the college level or by passing a proficiency examination.

Specialization is available for those interested in school libraries and in public library service for children, young adults and adult readers; and for candidates interested in college, university and special library service, map librarianship and information science.

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

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.

   **Required Courses:** Lib. 510, 512, 530, 600, 622 and 629.

   Course descriptions and courses to be chosen as electives in Library Science will be found under the listings for the School of Librarianship.

   At the time of application for candidacy, the student must have completed three of the required courses.

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

3. One full-time summer session (five semester hours minimum) or one full-time semester (nine semester hours minimum).

   Colloquium. Regular series of lectures, discussions, field trips and film demonstrations by eminent librarians, members of the staff and leaders in fields related to library interests. Required both semesters.

**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.

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*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.*
Mathematics

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

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

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, 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 30 hours of approved course work to include at least 24 hours of Mathematics, including: 520, General Topology I; 571, Analysis I; 630, Abstract Algebra I; either 670, Measure and Integration, or 676, Complex Analysis I; and an approved graduate level sequence.

3. Pass required examinations. Specifically, the student will take the Departmental Graduate Examination which will cover the basic material in topology, linear algebra, and analysis included in Mathematics 520, 530, and 571. This Examination is to be taken as soon as possible after the student has covered the required material. Also, in his final term under the masters program, he will take the Final Masters Examination which will cover the 600-level material in his masters program.

For students specializing in application of Mathematics, these requirements can be modified somewhat. Students interested in a Masters program in Statistics or Computer Science should consult the requirements listed under those headings.

Medieval Studies

John R. Sommerfeldt, Adviser

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

The requirements for the degree are as follows:

1. Before admission to candidacy, the student is expected to present (a) a survey course in medieval history, and (b) course work in philosophy or religion.
2. The course work includes a minimum of (a) three courses in medieval history, (b) three courses in medieval philosophy and/or medieval religion, (c) two courses in medieval literature, and (d) course work in methodology. Courses taken as an undergraduate can be counted toward these area requirements. The student must complete a minimum of 30 semester hours of graduate work.

3. The preparation of an acceptable thesis.

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

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

Music

The Master of Music degree program is designed for professional advancement as well as for cultural attainment. This program is an extension of the Bachelor of Music curriculum and is planned to enhance the teaching and performing ability of the student. The degree of Master of Music may be obtained in any one of five areas of concentration: 1) Applied Music, 2) Theory, 3) Music Education, 4) Composition, or 5) Musicology.

The student must successfully complete 14 semester hours in the major area in which he wishes to concentrate. In addition to a major area, a student will choose two minors from among the remaining four areas. The minors will consist of six semester hours each. To complete the necessary 30 semester hours of graduate credit the student will select, in consultation with his adviser, four semester hours outside of the field of music.

A comprehensive examination will be administered to the student upon entering the curriculum. The areas of examination are dependent upon the choice of the major area of concentration and may be selected from the following: 1) music literature and history, 2) theory, 3) applied music, 4) piano proficiency, and 5) conducting. The results of the test will be used to give direction to the student’s course of study. The student’s adviser will work closely with him in regard to planning and implementing the curriculum in order that the full value and depth of the program will be realized. The right is reserved to withhold the recommendation of a candidate for a degree if the student has not demonstrated sufficient maturation and musicianship. Students concentrating in Applied Music must meet minimum proficiency levels as described in the Music Supplement. Culminating projects in the form of a recital, composition, thesis, special project, or comprehensive examination are required for completion of a Master of Music degree.

The Master of Music degree curriculum is open to students with the Bachelor of Music degree or its equivalent.

A Master of Arts degree in the Teaching of Music is also available in the field of Education.

Administration and Supervision of Occupational Therapy

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

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

1. Fourteen hours from the following courses in Occupational Therapy: 630 Professional Literature, 632 Supervision of Occupational Therapy, 633 Administration of Occupational Therapy, 650 Clinical Training and Scheduling, and 712 Professional Field Experience (experience in organization and administration of occupational therapy).
2. Eight hours selected with the help of the graduate adviser from related fields, including Management.
3. Six hours including Statistics and Education 601, Research in Education.
4. A paper of significance will be required in 710 Independent Study.

**Occupational Therapy**

Dean R. Tyndall, Adviser

The purpose of the Master of Occupational Therapy degree program is to prepare qualified college graduates for the profession of occupational therapy. In general, the requirements for the degree are:

1. Completion of approximately thirty semester hours in basic occupational therapy education or previous preparation and life experiences accepted as equivalent by the department.
2. Completion of twenty-four semester hours including the following professional courses: 510 Kinesiology, 524 Medical and Orthopedic Conditions, and 712 Professional Field Experience (internship of a minimum of six months is required by the accrediting associations).
3. Completion of six semester hours including Statistics and Research in Education.

**Paper Science and Engineering**

Raymond L. Janes, Adviser

The Master of Science 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.

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.
Master's Degree Programs

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


2. Satisfactory completion of a Master's thesis (6 credit hours) 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, 560, 563; Mathematics 506, 574.

Physics

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

1. The following courses which make up twelve hours of physics open only to graduate students, namely: 622 Quantum Mechanics I, 624 Statistical Mechanics, 630 Classical Mechanics, and 662 Electricity and Magnetism.

2. Twelve additional hours from the physics, mathematics, or other departments chosen with the consent of the physics graduate adviser. Only courses numbered 500 or above carry graduate credit.

3. Satisfactory completion of a Master's thesis (6 credit hours) based on either an experimental or theoretical problem, under the guidance of a committee of the graduate faculty in physics. The committee may require an oral defense of the thesis before approving it for submission to The Graduate College.

Graduate students are expected to attend the Graduate Colloquium which is a weekly program for graduate students and Physics staff members, presented by members of the WMU Physics staff and visitors from other institutions, on topics related to their research specialties.

Graduate students are also expected to attend the Physics Public Lectures: a series of talks on topics of general interest in Physics and related fields.

Political Science

In addition to meeting the general admission requirements of The Graduate College, a student must have completed at least 24 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 Political Science 564, Political Inquiry and Analysis. In addition, the department strongly recommends that the student consider Political Science 590, Research Methods.
3. Satisfactorily complete at least three hours in each of two of the four fields listed below:
   a. American Political System
   b. International Relations
   c. Political Theory and Methodology (excluding Political Science 564, 590, and 591)
   d. Foreign and Comparative Political Systems
4. Complete a thesis (6 hours credit).
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 Political Science 564, Political Inquiry and Analysis. In addition, the department strongly recommends that the student consider Political Science 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

A candidate for a Master of Arts degree in Psychology must meet standards set by the Department of Psychology in addition to the admissions standards set by The Graduate College. Applicants should correspond directly with the department for information in experimental, clinical, or industrial psychology. Those intending to major in Psychology should apply both to The Graduate College and to the Department of Psychology. Admission as a degree candidate in Psychology is contingent upon approval of the applicant by the Department. For Evaluation, the Department requires the Graduate Record Examination-Aptitude Test, and the Miller Analogies Test. Those applying for fall admission and requesting financial assistance should apply by February 1. Requirements for the degree include the following:
Master's Degree Programs

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

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

3. Satisfactory completion of a thesis for six hours of credit in courses specified by the graduate adviser (except for School Psychology).

4. In addition to the 12 hours specified in 2 and 3 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 Psychology—eighteen or more credit hours with at least twelve hours in courses in basic behavioral processes and statistical analysis and at least nine hours of electives in courses in experimental problems, systems, history or data analysis techniques. This program is designed to prepare a student for doctoral training in experimental psychology.

   b. Clinical Psychology—forty-eight or more credit hours with at least twenty-four hours in courses in the theoretical and experimental analysis of human behavior and the practical modification and prediction of abnormal human behavior, at least three hours in statistical analyses, and at least nine hours of electives in courses in basic processes or experimental problems. 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.

   c. Industrial Psychology—eighteen credit hours in psychology courses in the areas of personnel selection, training, statistical analysis, learning or perception, and human motivation in industry. In addition to the required eighteen hour block, six hours must be selected from courses and seminars available in the areas of programmed learning, human factors in engineering, psychometrics, consumer behavior, and research design. This program is designed to prepare the student for sub-doctoral research positions in government and industry and for doctoral programs at other universities.

School Psychologist

Paul R. Fuller, Adviser

Prerequisite: Professional standing or Michigan teaching certificate and major or minor in psychology to include courses deemed advisable by the Psychology Department. One year of teaching experience or equivalent required before graduation.

To satisfy the requirements in this curriculum the student must elect courses from the offerings in education and psychology as follows: Special Education 532 or 534, and 635; Teacher Education 610 or equivalent; Psychology 517, 530, 623, 624, 660, 661, 662, 663 or 680, 681, 682 and 683. Substitutions may be made in certain cases with the consent of the graduate adviser.

The psychology courses deemed advisable for a background in their program include Abnormal Psychology, Psychology of Personality, Laboratory in Psychological Testing, Elementary Experimental Psychology, Learning and Memory.
or their equivalents. 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 program and of a 540 clock hour internship, the student may qualify for approval to work as a school diagnostician under the laws of the State of Michigan.

Social Work

Lynne Reihman, Director of Admissions

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

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 University 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. Sixty credit hours will be 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. A grade point average of 3.0 (A=4) is required for all work taken in the degree program and all other work applied toward the degree.
Master's Degree Programs

3. 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. (Beginning graduate students who plan to obtain the Ph.D. in Sociology may be admitted directly into both the M.A. and Ph.D. programs. See Ph.D. program for details.)

Eligibility for admission:

1. Students should have completed a minimum of 24 semester hours in undergraduate work in the Social Sciences, of which 15 semester hours should be in Sociology.
2. Students should have a grade-point average of 3.0 or better in their undergraduate sociology courses.
3. If these requirements have not been met on the undergraduate level, the student may be admitted with additional course work as specified by the department as a condition of admission.
4. Three letters of recommendation, from academic or professional sources, must be sent to the Departmental Admissions Committee.

Degree requirements:

1. Complete at least thirty hours course credits, selected in consultation with the Master's adviser. Twenty to twenty-four hours in Sociology courses with a 3.0 average. Six to ten must be in approved cognate areas.
2. Sociology courses 504, 580 and 582, or their equivalents, are required. Entering students who have not completed any of these courses as undergraduates may be required to complete additional hours beyond the thirty-hour minimum.
3. 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 course credit requirements.
4. Must pass an oral examination on the thesis or the essay.

Financial Support

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

Speech Pathology and Audiology

Robert L. Erickson, Harold L. Bate, Advisers

The Master of Arts degree program in Speech Pathology and Audiology is designed to provide academic and practicum experiences basic to the development of clinical competence in the management of language, speech and hearing disorders. The academic program consists of a minimum of 35 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 facility for one term, in addition to regular case work responsibilities in the Speech and Hearing Clinic.

Two options are available with respect to the academic degree program. The student who elects to complete a thesis must complete 29 hours of course work plus the thesis. The student who elects the non-thesis option must complete 35 hours of course work. In either event, at least 24 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. The student must fulfill the following academic requirements.

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

   (b) 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.

   (c) The undergraduate preparation must include 18 semester hours in courses that provide fundamental information applicable to the normal development and use of speech, hearing and language. Among these 18 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.

   (d) The undergraduate preparation also must include a minimum of 12 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.

   (e) 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.

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

   (g) Completion of at least one graduate seminar registration.
Master's Degree Programs

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

2. The student must have completed satisfactorily a total of at least 275 hours of supervised clinical practicum experience (including those hours, if any, accumulated as an undergraduate). This experience must include: work with pre-school, school age, and adult cases; group as well as individual therapy; diagnostic work; and work with a variety of disorders.

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

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

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

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

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Statistics

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

The Masters 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 (see program listing) with a program including the following courses:

Mathematics 560, 561, and 3 of the following: 660, 661, 662, 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). The supply of professional statisticians is limited, while the demand is great. 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 Graduate Studies 712 or Mathematics 663. The requirements in pure mathematics are not as extensive as in Option I.

In this option the student must complete 30 hours of approved graduate work, with at least 24 hours of Mathematics courses, to include:

1. Mathematics 506, 530, 562, 571, and 662.
2. Two of Mathematics 661, 663, 664, 667, 669
3. Professional Field Experience: Graduate Studies 712 or Mathematics 663.
4. One cognate course.

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

Technology

George E. Kohrman, Chairman of Advisers

The Master of Science degree program in Technology is designed to (1) prepare industrial technology teaching personnel for community colleges, (2) provide an opportunity for industrial employees to upgrade themselves in advanced technical skills and information, and (3) provide advanced technical course work for those who are preparing to teach in secondary schools and technical institutions.

The Master's Degree in Technology is sponsored by the College of Applied Sciences. A student must satisfy the following requirements to earn the degree:

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 point average of 2.0 in this area.
3. Complete a minimum of thirty semester hours of graduate work, including the course AAS-600, Introduction to Technology, three semester hours.
4. Complete, with the approval of his adviser, (a) twelve to fifteen hours in a major field of study representing his specialty in either industrial technology, industrial supervision, electrical engineering technology or mechanical engineering technology, (b) five to eight hours in a related technical or engineering field, and (c) the balance of 30 hour requirement in cognate areas of technology.
5. 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.
Specialist Degree Requirements

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. Transcripts of all courses taken beyond high school.
   c. A point-hour ratio of at least 2.6 (A=4) in the last two years of undergraduate work for all programs permitting entrance with Bachelor’s degree. A point-hour ratio of at least 3.25 for all work undertaken beyond the Bachelor’s degree.
   d. Attainment of satisfactory scores on the Aptitude and Advanced Tests of the Graduate Record Examination or a prescribed substitute. A satisfactory score usually is considered to be one that is at the 50th percentile or better.
   e. Attainment of a satisfactory score on the English qualifying examination. A non-credit English course must be passed by students failing the English qualifying examination. This requirement is waived for a student with an advanced degree.
   f. Acceptance by The Graduate College and a unit for a definite program of study.

2. Candidacy
   a. A permanent program which will constitute an application for admission to candidacy must be submitted during the first semester or session of enrollment.
   b. A point-hour ratio of 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 60 hours of accepted graduate credit in a program of study approved by an adviser.

c. **Residence Requirement**

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

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

d. **Point-hour Ratio**

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

e. **Transfer Credit**

A student who has taken all of the credits for his M.A. degree at Western Michigan University may transfer a maximum of twelve credits from another institution in a Specialist degree program.

A student who has already transferred six credits in his M.A. degree program at Western may transfer a maximum of six additional credits in a Specialist degree program.

A student who has secured his M.A. degree at an institution other than Western may include a maximum of thirty credits in a Specialist degree program. Units offering Specialist degrees are expected to give credit to transfer 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 26 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 6 credit hours of extension or residence center credit in addition to work completed as a part of his Master's degree. No more than 18 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. **Thesis or Graduate Paper**

A student completing the Specialist degree must present a thesis or major project paper in a form acceptable to the unit and The Graduate College. In
writing his paper, a student should consult Specifications for Masters’ Theses, Specialist Projects, and Doctors’ Dissertations, available in the Campus Bookstore.

SPECIALIST IN EDUCATION PROGRAMS

Educational Leadership

Advisers: Harold W. Boles, William D. Coats, James A. Davenport, Dorothy McCuskey, Gerald C. Martin, Ted Ploughman, William P. Viall, Donald C. Weaver

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

Students who apply to The Graduate College for admission to this degree will be notified whether he is accepted after a screening interview with a department committee and after receipt of Graduate Record Examination scores. Each student accepted will work with the Director, Student Personnel of the College of Education, 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" S.H. in ADMINISTRATION AND SUPERVISION
12" S.H. in HUMAN RELATIONS
12 S.H. in CONCEPT FORMATION
3 S.H. in RESEARCH
6 S.H. in INDEPENDENT STUDY (Internship or Field Project)
16 S.H. of electives
60 S.H. minimum Total

At least 20 S.H. of the minimum of 60 S.H. must be outside the School of Education. (See General Requirements for a Specialist Degree).

Whether credits earned in another degree program will be allowed will be determined by the adviser of 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

a Because of the different emphasis, the program for a Director of Curriculum may have a minimum of 8 S.H. in each of the Administration and Supervision and Human Relations areas.
proprietary school, or as a central administrator in an institution of higher education or other post-high school educational agency.

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

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

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**Counseling and Personnel**


A sixth-year program leading to the degree of Specialist in Education is offered by the Department of Counseling and Personnel. The degree is awarded upon satisfactory completion of a minimum of 60 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 in educational and lay agencies, 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, a satisfactory performance on the Graduate Record Examination, and the approval of a departmental screening 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.

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**School Psychological Examiner**  
*Paul R. Fuller, Adviser*

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

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 psychological research. To satisfy the requirements of this program the student must plan his sequence of courses with his adviser to assure competency in the following areas: (1) Testing of all types of children, (2) Pathology and personality theory, (3) Education, (4) Behavior modification (a. counseling, and b. reinforcement therapy), (5) Agency relationships, (6) Interdisciplinary team approach, (7) Perception and cognition, and (8) Learning theory. In addition, the student must complete from six to eight hours of internship and a specialist project (2 to 6 semester hours).

Special Education

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

The Specialist in Education is offered to assist special education personnel in developing professional competencies in supervision and administration of programs and services for exceptional children and youth. Individuals applying for admission to this program will be expected to have completed sufficient courses to qualify for full approval to teach exceptional children and a minimum of two years of teaching experience in a special classroom setting. In addition, the applicant will be expected to meet the general requirements for admission, academic achievement, candidacy, and graduation specified by The Graduate College.

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

SPECIALIST IN ARTS PROGRAMS

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 Degree Programs

Specialist in Arts students must complete one semester or two consecutive sessions in residence on the campus.

The professional preparation for those students preparing to teach in the Community College will include courses in:

1. The Community College.
2. Characteristics of the College Student.
4. A research course either in the student’s major field or in Education.

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

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

A student should arrange for a personal interview with representatives of The Graduate College and the unit in which the student desires to study. The student must also be accepted by the department or unit in which he wishes to study.

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**

L. Michael Moskowitz, Adviser

The Specialist in Business Education program is designed to prepare community college teachers of business subjects. Each student must select for concentration an area of business taught in community colleges and will be expected to complete work in some other area of study offered by the College of Business in addition to some work in economics or in the behavioral sciences. The exact division of course work will be determined by the student in consultation with his adviser.

**English**

John H. Stroupe, Adviser

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

supervision of a member of the English faculty or in a community college under appropriate supervision.

History

Lewis H. Carlson, Adviser

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

The specific requirements for the degree include:

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

Although no specific number of hours is required in each field of concentration, the student will be expected to pass a written and oral examination in two fields of concentration during the semester in which he completes thirty hours of graduate work and in the other two fields during the final semester or session. Students must complete History 692, Studies in Historical Literature, History 690, Historical Method, and the professional work required by The Graduate College.

International and Area Studies

The goal of the Sp.A. 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 first program, designated Plan I, rests on the premise that certain crucial problems confronting developing societies are best examined in a comparative context, utilizing data drawn from contrasting cultural milieu. The theoretical and practical problems inherent in 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. Plan I, therefore, is designed to accommodate those students who desire to examine that broad range of problems the investigation of which requires both cross-disciplinary and cross-cultural perspectives.
Plan II programs are based on the premise that cultural or geographical areas, as these are defined by the conventions of contemporary scholarship, constitute legitimate, feasible and necessary topics of cross-disciplinary research, study and teaching. Plan II programs are thus designed to serve the interests of students wishing to focus their scholarly interest on the cross-disciplinary study of a single geographical area.

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

A minimum of 60 semester hours of course work beyond the Bachelor’s degree is necessary for completion of an Sp.A. in International and Area Studies. Based on the expectation that students entering these Sp.A. programs will possess widely varying prior preparation, those with limited background in international and area studies may be required to take course work substantially beyond this minimum.

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

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

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

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

Plan I. Comparative/Cross-Cultural Studies

Mona J. Green, Adviser

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

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

Students enrolled in the Comparative/Cross-Cultural Specialist in Arts option are required to take Social Science 606, Colloquium in International and Area
Specialist Degree Programs

Studies, plus at least one Core Course from three of the following five departments: Anthropology, Economics, Geography, Political Science, and Sociology.

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

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

Plan II. Area Studies

Africa

Robert W. Hannah, Adviser

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

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

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

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

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

Asia

Andrew C. Nahm, Adviser

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

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

Candidates for this Specialist in Arts concentration must also complete at least two Asian Studies Core Courses, from three of the following seven departments:
Specialist Degree Programs

Anthropology, Economics, Geography, History, Political Science, Religion, and Sociology.

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

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

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

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

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

Mathematics

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), Analysis I (571), and General Topology (520). Later in his
Specialist Degree Programs

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 & 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 Mathematics 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.

Science Education

The Specialist in Science Education program is designed to prepare community college teachers of science. Since community college teachers of science are frequently required to teach such combinations of courses as: Biology and Life Science, Chemistry and Physical Science, Geology and Earth Science, and Physics and Physical Science, each student’s program will be designed to prepare him for one of these combinations.

Each student’s program will be planned in consultation with an adviser selected from the Science Education faculty of the student’s major field of study. The student will be required to take work from more than one Science area and also in Mathematics where necessary. The maximum credit given within the program from Mathematics may not exceed 12 hours. The student will normally take thirty-nine to forty-four hours of graduate level work from a science area (physical science, life science or earth science), including supporting mathematics where necessary. The Specialist project may be done in either the major science area of in Science Education and under the direction of a faculty adviser and a committee. Students in this program are required to make an oral presentation of their project. Students must present at least an undergraduate major in one Science area in order to be admitted. They must also meet all the general requirements stated above.
Western Michigan University's Graduate College offers doctoral programs in five areas. Four, Chemistry, Mathematics, Sociology, and Science Education lead to the Doctor of Philosophy degree and the fifth, Educational Leadership, involves study toward a Doctor of Education degree. Each program involves approximately three calendar years of study of which at least one complete year must be spent in full-time study on the campus.

Each student's program will be planned by a committee selected in consultation between the student and the graduate adviser of the program in which he wishes to study. A student will be expected to register for at least 90 hours of graduate level work while completing his program. The exact distribution of that 90 hours among courses, seminars and research will depend upon the program and will vary from one student to another. Each program, however, will contain a significant amount of research and each student will be required to register for and prepare a dissertation for fifteen hours of graduate credit.

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

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

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

GENERAL REQUIREMENTS FOR A DOCTORAL DEGREE

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

   a. See specific program description to determine the minimal entrance requirements.

   b. Transcripts of all courses taken beyond high school.
Doctoral Degree Requirements

c. For students who have completed at least 20 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 20 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.
e. Attainment of satisfactory scores on the Aptitude and Advanced Tests of the Graduate Record Examination or an examination of a similar nature approved by the Graduate Studies Council. A satisfactory score usually is considered to be one that is at the 50th percentile or better.
f. Attainment of a satisfactory score on the English qualifying examination. A non-credit English course must be passed by students failing the English qualifying examination. This requirement is waived for a student with an advanced degree.
g. Admission by both The Graduate College and the unit offering the doctoral program.

2. Applicancy

a. A student admitted with less than 20 hours of graduate study must request status as an applicant after completing two full semesters of graduate work on campus or 20 semester hours of graduate work beyond those accumulated at the time of admission, whichever comes first. A student should present this request to his advisor who will submit a recommendation to The Graduate College.
b. A student admitted with more than 20 hours of graduate study must request status as an applicant after completing one full semester of graduate work on campus or 40 semester hours of graduate work completed, whichever comes first.
c. Criteria for being awarded status as an applicant include:
   1) An overall point-hour ratio of 3.25 in all graduate work completed.
   2) Commitment to a specific degree program.
   3) Appointment of a doctoral committee.
   4) A decision by the unit that the student should be permitted to continue his study toward a doctoral degree.

3. Candidacy

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

a. An overall point-hour ratio of 3.25 in all graduate work completed.
b. Successful completion of the comprehensive examinations established for the program.
c. Completion of the research tool and/or language requirements.
d. Endorsement by the Doctoral Advisory Committee of the plan for the student’s dissertation.
e. Completion of all basic course requirements.
4. Graduation—(See Calendar of Events for Application deadline.)

a. Completion of a minimum of 90 hours of courses, seminars, research, and other requirements including 15 hours of dissertation with an overall point-hour ratio of 3.25.

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

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

d. Approval of the dissertation by three members of the Doctoral Advisory Committee, including one member from outside the major department.

e. Satisfactory performance on the doctoral examination.

PROGRAMS LEADING TO A DOCTORAL DEGREE

Chemistry

Don C. Ifland, Adviser

The Ph.D. program in Chemistry at Western Michigan University is a flexible one which may be tailored to the needs of the individual. Of the total program of 90 semester hours, a 32 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.

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 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) Seminar, two hours; (b) Chemical Literature, one hour; (c) Chemical Laboratory Safety, one hour; (d) Instrumental Methods in Chemistry, three hours; (e) Six 600-level courses from at least three divisions including two
Doctoral Degree Programs

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 Seminar, Chemical Literature, and Chemical Laboratory Safety) 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 students’ dissertation are taken.

Educational Leadership

Advisers: Harold W. Boles, William D. Coats, James A. Davenport, Dorothy McCuskey, Ted Ploughman, 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.

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

14 S.H. in ADMINISTRATION AND SUPERVISION
15 S.H. in HUMAN RELATIONS
20 S.H. in CONCEPT FORMATION
27 S.H. in RESEARCH
9 S.H. in INDEPENDENT STUDY (internships)
5 S.H. of electives

90 S.H. minimum Total

At least 20 S.H. of the minimum of 90 S.H. must be outside the School of Education. (See General Requirements for a Doctoral Degree).

Whether credits earned in another degree program will be allowed will be determined by the adviser on an individual basis.

Curricula available within this degree program include:

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

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

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

Also within this degree program is a curriculum in Counseling and Personnel. (See that department’s listing of offerings for description.)

Counseling and Personnel


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

1. Pupil Personnel Services in schools and lay institutions.
2. Student Personnel Services in Higher Education, and
3. Counselor Education.

*Because of the different emphasis, the program for a Director of Curriculum may have a minimum of 11 S.H. in each of the Administration and Supervision and Human Relations areas.*
**Doctoral Degree Programs**

The leadership program consists of three major components:

1. **Educational Leadership core**, including courses in:
   - Administration
   - Human Relations and Behavior
   - Social and Philosophical Foundations of Education

2. **Study in special interest area**:
   - Counseling and Counselor Education
   - Pupil Personnel Services
   - Student Personnel Services in Higher Education

3. **Internship, Research and Dissertation**.

Application for admission to the Ed.D. Degree Program must be made both to The Graduate College and to the Director of Student Personnel, College of Education. Admission to the program is contingent upon satisfactory scores on the Graduate Record Examination and the recommendations of a screening committee representing both The Graduate College and the Department. Each student will be assigned an adviser who, together with the student, will select a Doctoral Committee.

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**Mathematics**

Philip Hsieh, Chairman of Advisers
A. Bruce Clarke, Department Chairman

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

Each student must pass the Departmental Preliminary Examination, which consists of three three-hour written examinations in Algebra (630, 631), Analysis (670, 671, 676), and Topology (620, 621). However, with the approval of the Doctoral Committee, either Algebra or Topology may be replaced by the major area of a student concentrating in a field outside of these three. A student must take each Preliminary Examination the first time it is offered following his completion of the required course work in that area. 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 competency 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 consult the program adviser.

Science Education

The Ph.D. program in Science Education is designed to prepare (1) science supervisors, directors of science instruction, or heads of science departments in large school systems or in state departments of education, (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 and courses in research methodology, or (3) college teachers of science methods courses offered by departments or schools of education and supervisors of student teachers of science.

All students will be expected to meet the regular requirements for admission, residence, and comprehensive examinations established by The Graduate College. Admission to take work toward the doctoral degree in science education will require an undergraduate major in one area of 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 90 hours of graduate credit. This course work is divided into the following categories:

Sciences: 20 hours of graduate credit in one science: biology, chemistry, geology or physics
20 hours of graduate credit in two other sciences

Professional Education: 21 hours of graduate credit
Dissertation: 15 hours

The remainder of the program will consist of independent research, seminars in
Doctoral Degree Programs

science education and additional work in science and/or mathematics. Two research tools, generally statistics and computer programming, are required for the completion of this degree. Individual student programs are planned by the student and the Coordinator of Graduate Science Education.

At approximately the end of the second year of graduate study or at the time most of the course work is completed, the student will take the Comprehensive Examination. The examination consists of two parts, a written over the science areas and science education and a proposition-type oral.

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.

To be admitted to candidacy for the doctoral degree, the student will be expected to have completed two years of successful experience in teaching at the elementary or secondary level in addition to the other requirements for all doctoral degrees.

Sociology

J. Ross Eshleman, Stanley S. Robin, Advisers

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, and Comparative Sociology. A third area of individual specialization is chosen by the student with the approval of the student’s doctoral committee.

Eligibility for Admission with Bachelor’s Degree

1. Applicants must have a grade-point average of 3.25 in fifteen or more semester hours of sociology courses.
2. Applicants must have an overall grade-point average of 3.00.
3. Applicants must also have strong general academic qualifications, letters of recommendation, Graduate Record Examination scores, etc.

Degree Requirements for those Admitted with Bachelor’s Degree

1. Complete approximately ninety hours of graduate courses, including thesis and dissertation credits.
2. Complete all requirements for the master’s degree including a thesis.
3. Sociology courses, 601, 604, 625, 630, 681, 682, and 684, or their equivalents are required.
4. Demonstrate competence in two research tools selected from: a foreign
Doctoral Degree Programs

language other than English, research methodology, statistics and computer programming.

5. Fulfill Ph.D. Core, Area, and Dissertation requirements.

Eligibility for Admission with Master’s Degree

1. Applicants must have a grade-point average of 3.25 for all course work taken for graduate credit.
2. Applicants should have, or be completing, a Master’s degree in Sociology.
3. Applicants who hold a Master’s degree in a related field may be admitted to the program but will be required to make up deficiencies without credit.

Degree Requirements for those Admitted with Master’s Degree

1. Complete approximately sixty hours of course and dissertation credits, beyond Master’s work selected in consultation with the doctoral adviser.
2. Sociology courses, 601, 604, 625, 630, 681, 682, and 684, or their equivalents are required.
3. Demonstrate competence in two research tools selected from: a foreign language other than English, research methodology, statistics and computer programming.
4. Fulfill Ph.D. Core, Area, and Dissertation requirements.

Financial Support

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

Description of Graduate Courses

College of Applied Sciences

GEORGE E. KOHRMAN,  
Dean

W. CHESTER FITCH,  
Associate Dean

Graduate Offerings:  
Applied Science  
Agriculture  
Distributive Education  
Engineering and Technology  
Home Economics  
Industrial Education  
Occupational Therapy  
Paper Science and Engineering
College of Applied Sciences

The College of Applied Sciences includes the following departments: Agriculture, Distributive Education, Engineering and Technology, Home Economics, Industrial Education, Military Science, Occupational Therapy, Paper Science and Engineering and Transportation Technology.

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

Applied Science

Open to Graduates and Upperclassmen

520 Principles of Vocational Education 3 hrs.

The place and function of the practical arts and vocational education in the modern school; fundamental principles upon which this work is based. For teachers of agriculture, business, home economics, industrial subjects and administrators.

Open to Graduates Only

600 Introduction to Technology 3 hrs.

A study of the development of the technical education movement and the function, philosophy, trends, and types of technical education programs.

605 Studies in Technology 1-4 hrs.

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

622 Occupational Laboratory Experience 2-3 hrs.

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

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

The functions of administration and supervision; problems involved in the organization and operation of practical arts and vocational education programs. For administrators, supervisors of vocational education and those wishing to prepare for such positions.
626 Trends in Technology and Employment 2 hrs.

Major occupational shifts resulting from recent advances in science and 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.

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.

628 Seminar in Vocational Education 2 hrs.

An intensive study of problems related to vocational education. For teachers, coordinators and administrators who have completed at least fifteen hours of graduate credit.

Agriculture

Open to Graduates and Upperclassmen

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

Open to Graduates and Upperclassmen

500 Seminar in Distributive Education 2-4 hrs.

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

570 Organization and Operation of Distributive Education 2 hrs.

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

571 Job Supervisory Training 2 hrs.

This course provides for mastery of the techniques and skills necessary for curriculum development in the high school, community college, area vocational center and adult education programs. Recommended for cooperative teacher coordinators.
572 Teaching Techniques in Cooperative Education 2 hrs.
This course deals with the methods and techniques used in teaching the related subjects to students on cooperative work-study programs. Special emphasis will be given to group and individual methods of instruction.

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

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

Engineering and Technology
Fitch, Chairman; Professors Beukema, Day, Hesselberth, Nantz, Scott, Wilcox; Associate Professors Bluman, Davis, Douglas, Gill, Groulx, Johnson, Pridgeon, Rayl, Stegman, Urich, VanderKooi, Wichers, Wolf; Assistant Professors Boughner, Hamelink, Klein, Lindenmeyer

GENERAL ENGINEERING AND TECHNOLOGY

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 6 hrs.

INDUSTRIAL ENGINEERING AND SUPERVISION
Open to Graduates and Upperclassmen

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 ENGT 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 ENGT 402.

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

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

Open to Graduates Only

602 Industrial Project Engineering 3 hrs.

The functions and responsibilities of the industrial engineer relative to plant equipment and facilities. Topics include production process models, equipment replacement models and operation control models of both a deterministic and probabilistic nature. Prerequisite: ENGT 404 and consent of instructor. Math 260 or 360.

603 Supervision of Industrial Training 3 hrs.

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

604 Linear Programming for Engineers 3 hrs.

The formulation of linear mathematical models as applied to engineering problems. Solutions to linear programming problems are obtained by using appropriate algorithms. Sensitivity analysis techniques are presented and the significance of changes in the model are studied. Prerequisite: Math 123.

605 Industrial Supervision Seminar 3 hrs.

An analysis of the writings, literature, and philosophy concerning line supervision and employee direction in manufacturing industries.

ELECTRICAL ENGINEERING TECHNOLOGY

Open to Graduates and Upperclassmen

541 Electrical Fields 3 hrs.

Electrostatics, including such topics as Coulomb’s Law, Gauss’s 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: ENGT 345 or Math 223 or consent of instructor.

542 Advanced Circuits 3 hrs.

Advanced circuit analysis, steady state and transient responses, writing and solving integrodifferential equations by classical methods and by Laplace transforms, network theorems. Fourier series analysis, complex frequency, poles and zeroes. Prerequisite: ENGT 344.

545 Electrical Power Systems 3 hrs.

Engineering considerations of generating equipment, transmission and dis-
distribution systems, switch gear and industrial power distribution. Prerequisite: ENGT 342.

Open to Graduates Only

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

642 Network Synthesis 3 hrs.
Synthesis of passive networks in the frequency and time domain; Foster and Cauer forms of 2-terminal LC, RC, and RL networks; Brune’s method of RLC synthesis, Ladder networks, and approximation. Prerequisite: ENGT 542.

644 Microwave Techniques 3 hrs.
Co-axial lines, wave guides, oscillators, mixers, amplifiers, test equipment, and measurement. Prerequisite: ENGT 541.

646 Pulse Circuits 3 hrs.
Analysis and synthesis of switching, waveshaping, and control circuits. Prerequisite: ENGT 340.

ENGINEERING GRAPHICS TECHNOLOGY

Open to Graduates and Upperclassmen

552 Technical Illustration 3 hrs.
Techniques of illustrating for technical publications such as engineering reports, technical and service manuals, and parts catalogs. Prerequisite: ENGT 230.

553 Industrial Drafting Practices 2 hrs.
Organization, administration, and procedures and methods involving personnel, planning, equipping and systematizing an industrial drafting department. Prerequisite: ENGT 331. (Offered alternate years)

554 Product Design and Development 3 hrs.
Conceptual design and development of a product. Production of a working model in the laboratories. Product proposal, engineering documentation and engineering analysis of product. Prerequisite: ENGT 430.

MECHANICAL ENGINEERING TECHNOLOGY

Open to Graduates and Upperclassmen

551 Welding Design Analysis 3 hrs.
Production methods and design using modern techniques of electron beam welding, inertia welding, and application of lasers for welding. Use of various
protective enclosures, plasma arc welding, automated electronic welding. Weld testing techniques. Prerequisite: ENGT 251.

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

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

557 Advanced Product Design 3 hrs. Fall
An engineering design project from concept to adoption. Static and dynamic analysis. Mechanical systems design and layout. Prerequisite: ENGT 360. 453 (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: ENGT 355 and 360, or Math 223.

651 Advanced Strength of Materials 3 hrs.

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

653 Advanced Heat Transfer 3 hrs.
Advanced topics in conduction, convection, and radiation heat transfer with emphasis on industrial applications. Prerequisite: ENGT 451.

656 Advanced Fluid Dynamics 3 hrs.
Modern developments in the field dynamics both in the areas of compressible and incompressible fluid flow. Topics include: Kinematics of fluid motion, laminar and turbulent flow in pipes, fluid machinery and supersonic flow. Prerequisites: ENGT 356, 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: ENGT 360 or 442. (Offered alternate years)
METALLURGICAL ENGINEERING TECHNOLOGY

Open to Graduates and Upperclassmen

570 Metal Fabrication 3 hrs.
Fundamentals of elasticity, plasticity and the mechanical forming methods and industrial processes of metal fabrication: rolling, forging, extrusion, drawing, and powder metallurgy. Prerequisites: ENGT 373 or 351 and 354.

572 X-Ray Diffraction 3 hrs.
X-ray methods of crystal structure determination are applied to non-destructive testing, cold working, age hardening and phase changes in metal alloys. Prerequisites: Math 123, Physics 210.

573 Physical Metallurgy III 3 hrs.
Material selection for resistance to both load and environment. Design parameters for material selection and various metal systems. Corrosion, service failures and mechanical behavior of engineering alloys at high and low temperatures. Prerequisite: ENGT 351 or 373.

574 Casting Design 3 hrs.
Engineering design of castings based on stress analysis and capabilities of production casting processes. Prerequisite: ENGT 254, 256.

575 Die Casting 3 hrs.
Production of die casting, including design, melting, casting and finishing processes emphasizing production of quality casting economically. Prerequisite: ENGT 254.

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 Graduates Only

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

Parker, Chairman; Professors Brennan, Taylor; Associate Professors Holland, Kavanaugh; Assistant Professors Bibza, Tooke; Instructor Fulton

Open to Graduates and Upperclassmen

500 Advanced Textiles 2 hrs.
The study of the composition, construction, finishing, and care of textiles. Prerequisite: Home Economics 101
502 Textile Clinic  
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.

504 The Socio-Psychological Aspects of Clothing  
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.

506 History of Costume  
A study of the history and development of Western dress from the time of the Egyptians to the present day. In each period, costume is investigated as an expression of many interacting forces including social structure, political thought, religious beliefs, cross-cultural interaction and outstanding persons of the day.

508 Flat Pattern Design  
A study of the drafting techniques employed in the flat pattern method for designing clothing.

510 Advanced Nutrition  
Study of recent developments in nutrition through readings and experiences. Prerequisites: Home Economics 114 and 210.

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

518 Advanced and Experimental Foods  
Concentrated study of principles of food preparation. Development of experimental techniques and opportunity for individual studies. Prerequisites: Home Economics 210, Chemistry 120.

519 Experimental Foods Research  
Individual research in chemical and physical properties of foods. Development of research studies, writing and reporting techniques. Prerequisite: Home Economics 518.

520 Equipment  
A study of principles of equipment and demonstration as applied to the areas of home economics. Prerequisites: Home Economics 201 and 210 or consent.

552 The Homemaking Center and the Equipment  
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 2-4 hrs.

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

Open to Graduates Only

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

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

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

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

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

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

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

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

618 Teaching of Specific Subjects in Home Economics 2 or 3 hrs.
An intensive study of problems in the specialized areas of Home Economics such as: Foods and Nutrition, Home Furnishings, Textiles and Clothing, Methods, etc. May be enrolled in more than once. Maximum credit not to exceed 4 hours.
636 Teaching for Independent Living 3 hrs.
   Designed to provide a practical background and a basic understanding of problems found in the homes and communities of the home bound. This course will be concerned with general home problems related to management, personal adjustment and care of the family members.

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

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

644 Curriculum Planning and Evaluation in Home Economics 2-4 hrs.
   Consideration of changes in family living and society in relationship 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 2 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: Home Economics 350.

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

662 Seminar in Family Relations 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 2 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 2 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.

Industrial Education

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

500 Furniture Production 2 hrs.

Design and production of furniture, including the development of all phases of tooling and jig and fixture design necessary for the mass production of a piece of furniture. Prerequisite: Machine Woodwork 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: General Woodworking 100.

506 (306) Residential Building Construction 3 hrs.

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

507 (501) Finish Carpentry and Cabinetmaking 3 hrs.

This course is designed to include finished carpentry such as built-in cabinets, and the installation of prefabricated cabinets. It will also include wall coverings, finished flooring, floor coverings, fitting and hanging doors, interior trim and interior painting and finishing. Prerequisites: General Woodworking 100 or Machine Woodwork 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: Residential Building Construction 506.

520 Architectural Graphics 3 hrs.

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

522 Laboratory Practices in Drafting

A course in the methods and problems of teaching drafting and graphics on the secondary and post secondary level. In addition, emphasis is placed on a review of secondary and collegiate texts, resource materials, problem design and checking of drawings. Prerequisite: 12 hrs. in Drafting, and junior classification.

524 Commercial Architectural Design

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

525 Architectural Perspective and Rendering

An intensive study of angular and parallel perspective. Emphasis will be placed on entourage and rendering techniques in preparing architectural presentation drawings. Prerequisite: Architectural Graphics 520 or equivalent.

538 Problems in Metalworking

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

540 Technical Education Methods

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

545 Safety Education for Industrial Teachers

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

548 History and Philosophy of Industrial Education

Industrial education in America, with special attention to European influences, experiments, industrial developments and theories. Emphasizes developments leading to modern practices in industrial arts and vocational industrial education.

551 Halftone Photo Processes

A laboratory course stressing halftone reproduction and related photo techniques. Posterization, duotones, basic color, and mechanical dropouts will be included. Prerequisite: Photolithographic Techniques 350.
552 Estimating

Estimating 452 with special emphasis on the use of Printing Industry Production Standards in the pricing of printed materials. Prerequisite: Estimating 452.

553 Printing Production Management

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

560 Electricity-Electronics for Teachers

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

570 Arts and Crafts Techniques

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

573 Mechanics and Conditioning of Equipment

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

575 General Industrial Arts Laboratory Organization

Practical experience in drawing and planning, woodworking, metalworking, electricity, and craftwork will be required. Course will include selection, development and preparation of materials and instructional media for multiple activities instruction at the junior and senior high school levels. Prerequisite: 15 hours in Industrial Education Technology.

578 Plastics Technology

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

582 Applied Fluid Power

Deals with fluid power development transmission and control systems. Laboratory experience requires application of fluid power to a manual or electrically powered machine.
584 Automotive Technology for Teachers 3 hrs.
Deals with recent technical developments, and current practices in automotive instruction.

585 Advanced Automotive Technology for Teachers 3 hrs.
Designed for automotive teachers and advanced undergraduates. Deals with advanced technical developments, and practices and problems unique to automotive instruction.

586 Laboratory Practices in Automechanics 3 hrs.
Designed for technical school and/or community college transfer students. Emphasis on course development, teaching and evaluation methods, instructional materials and equipment selection. Includes laboratory practice applying teaching techniques. Prerequisites: I.E. 584 and 585 or equivalent.

588 Power Laboratory Techniques 2 hrs.
Advanced course treating recent applications of energy and power. Emphasis on laboratory planning and equipping, and instructional material evaluation and application to instruction. Prerequisite: Power Mechanics 180, or consent.

590 Industrial Arts for the Elementary School 2 hrs.
This course is concerned with the problems of organizing, correlating and teaching constructional activities in the elementary grades. Course materials, techniques, and materials in the industrial and craft areas will be stressed through the construction of a teaching unit.

592 Aerospace for Classroom Teachers 2 hrs.
A course dealing with the educational, social, economic, and political implications of aviation in the modern world. A study will be made of basic aerospace materials and activities that are appropriate for different grade levels. Consideration will be given to aerospace literature and visual aids suitable for youngsters. Opportunities will be provided for participation in a variety of aerospace experiences. This course is open to elementary and secondary education students.

593 Arts and Crafts for Special Education Teachers 2 hrs.
This course will cover craft techniques in areas of sketching, leather, wood, and other related experiences. Emphasis will be placed on teaching procedures, methods, and materials.

594 Home Mechanics for the Blind 2 hrs.
A course to fulfill the needs for general knowledge and basic skills in home mechanics in the areas of woodworking, electricity, plumbing, and general maintenance.

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

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

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

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

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

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

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

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

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

646 Teaching Problems in Industrial Education 2 hr.
Special attention will be given to teaching methods and the techniques useful to experienced industrial education teachers. Emphasis will be placed on problem solving in industrial education, pupil planning and the demonstration technique. Each student will be required to work out a program of teaching methods useful in his particular school.
647  Modern Technological Practices — Foundry, Power Mechanics, Machine Shop, Welding, Electronics, etc.  2-4 hrs.

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

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

Continuation of Industrial Education 647.

650  Advanced Problems in Graphic Arts  2 hrs.

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

661  Electricity for Teachers  2 hrs.

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

671  Industrial Education Materials  2 hrs.

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

672  Studies in General Shop Content and Practice  2 hrs.

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

699  Technical Problems in Industrial Education  1-3 hrs.

Designed for qualified graduate students wishing to pursue technical problems of individual need or interest under the direction of a member of the graduate faculty. May be elected in the Industrial Education Department or in an associated department, with the approval of Head, Industrial Education Department and the faculty member under whom the student desires to work. Applicants must have permanent graduate program filed, and applications must be approved prior to registration for course. Course is repeatable to maximum of 3 semester hours credit. Prerequisite: I.E. 598.
Occupational Therapy

Tyndall, Head; Professor Kiss; Associate Professor Lewis; Assistant Professor Richardson

Open to Graduates and Upperclassmen

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

520 Kinesiology 3 hrs.
Investigation and analysis of human motion. Includes a study of body mechanics, principles of muscle contraction, surface anatomy, range of motion, muscle testing, and activity analysis. This study is accompanied by a review of basic functions of the musculo-skeletal and nervous system. Prerequisites: Occupational Therapy 221, Biology 219

524 Medical and Orthopedic Conditions 4 hrs.
A series of lectures concerned with medical and orthopedic conditions which are treated by the occupational therapist. Prerequisite: Consent of Department Head.

Open to Graduates Only

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

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

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

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

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

Janes, Head; Professor Kukolich; Assistant Professor Fisher

Open to Graduates and Upperclassmen

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

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.
College of Arts and Sciences

CORNELIUS LOEW,  
Dean

JAMES P. ZIETLOW,  
Associate Dean

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

The College of Arts and Sciences offers a variety of subjects that familiarize the graduate student with the world of ideas, and deepen his understanding of man's cultural heritage.

Graduate programs are offered in Anthropology, Biology, Chemistry, Communication Arts and Sciences, Earth Science, Economics, English, Geography, Geology, History, International and Area Studies, Languages, Mathematics, Medieval Studies, Physics, Political Science, Psychology, Sociology, Speech Pathology and Audiology and Social Work.

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

Arts and Sciences — Foreign Studies Seminars

Open to Graduates and Upperclassmen

Arts and Sciences 503 Foreign Studies Seminar 1-6 hrs.

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

Arts and Sciences 504 Foreign Studies Seminar 1-6 hrs.

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

Arts and Sciences 505 Foreign Studies Seminar 1-6 hrs.

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

Social Science 504 Social Studies Seminar: England 6 hrs.

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

Social Science 504 Social Studies Seminar: Yugoslavia 6 hrs.

Lecture and study program in Yugoslavia, with lectures, followed by discussion forums by leading scholars in Yugoslavia and travel in the country. Designed for exceptionally talented undergraduate students and graduate students, the seminar introduces participants to the social and political system, philosophical and religious beliefs, art and literature, peoples, customs, and traditions of Yugoslavia. A maximum of three hours credit may be earned in each of two departments of the Social Science area, under such conditions and stipulations as the individual departments may make. Arrangements must be made in advance with the heads of the departments in which the student wishes to earn credit.

Social Science 504 Social Studies Seminar: East Africa 6 hrs.

Lecture and field-study program of approximately six weeks in Kenya and Uganda, especially designed 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.

Arts and Sciences 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.

Arts and Sciences 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 Philosophy, Religion, Modern and Classical Languages, English, Art, Music, or Communication Arts and Sciences if the credit is approved by the Head of the Department prior to registering for the seminar. May be repeated for credit.
Anthropology

Garland, Chairman; Professor Maher; Associate Professors Baldwin, Smith; Assistant Professors Green, Lex, E. Loffler, R. Loffler, Sundick, Willis, West; Instructor Moore

Open to Graduates and Upperclassmen

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: Anthropology 210.

501 The Rise of Civilization 3 hrs.
The archeological sequence in one or more of the nuclear centers of prehistoric civilization will be considered in some detail. The course may focus intensively upon one area, or it may give equal emphasis to two or more areas in a comparative framework. The specific area or areas to be studied will be announced each semester. May be repeated. Prerequisite: Anthropology 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 the excavation of archaeological sites, including surveying techniques, methods of excavation, compilation of field data sheets, and classification of artifacts. To be taken concurrently with 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: Anthropology 220 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: Anthropology 210, 220, 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: Anthropology 522 or equivalent, and consent of instructor.

525 Modern African Cultures

The treatment of African societies and cultures within a contemporary framework. Examination of current developments which reveal both the continuity and discontinuity of basic African traditions. New dimensions, varieties, themes and patterns in African cultures explored from the anthropological approach. Prerequisite: Anthropology 220 or consent of instructor.

531 Medical Anthropology

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: Anthropology 220 or consent of instructor.

532 Culture and Personality

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: Anthropology 220 or consent of instructor.

534 Peasant Societies in Cross-Cultural Perspective

A cross-cultural study of the development of peasant groups as a cultural type. Theoretical and substantive 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: Anthropology 220 or consent of instructor.

535 The Anthropology of Religion

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: Anthropology 220 or consent of instructor.

536 Cultural Evolution

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: Anthropology 210 or 220 or consent of instructor.

537 Political Anthropology

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: Anthropology 220.

538 Legal Anthropology

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: Anthropology 220.
539 Economic Anthropology  
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: Anthropology 220 and Economics 200, and/or consent of the instructor.

540 Cultural Ecology  
A cross-cultural comparative inquiry into the general and specific ways in which the interaction of society and environment determines the forms societies take, especially in respect to demography, territoriality, and the organization of kinship, politics, law, religion and economics. Prerequisite: Anthropology 210 or 220, or consent of instructor.

542 Complex Cultures  
Emphasis on anthropological approaches to cross-cultural, historical and in-depth studies of complex cultures. Selected topics: communities, including urban; the migration and adaptations of rural migrants to cities; particular sub-cultures of complex cultures; and current urban problems. Prerequisite: Anthropology 220.

545 Topics in Ethnology  
An intensive study of the cultures of an area of the world (e.g. Japan, Philippines, Caribbean, East Africa) or of selected problems (e.g. kinship systems, millenarian movements). Topic will be announced each semester. May be repeated for credit. Prerequisite: Anthropology 220 or consent of instructor.

549 Anthropology of Education  
A study of education as the process which transmits the culture of one generation of a society to the next. Particular attention is given to education in primitive and peasant societies generally lacking formal institutions of education. Prerequisite: Sociology 200 or 600, or Anthropology 220.

550 The Primates  
A study of the Order Primates with emphasis on the similarities and differences in the physical features of man, the apes, the monkeys, and the Lower Primates. Field studies on the behavior and social organizations of monkeys and apes will be reviewed to gain insight into the early behavior and social organization of man. Prerequisite: Anthropology 250 or consent of instructor.

551 Human Osteology  
A study of the human skeleton. Emphasis will be on morphological and metrical variation, odontology, paleopathology, and reconstruction of the individual and the population. Prerequisite: Anthropology 250 or consent of instructor.

555 Topics in Physical Anthropology  
A consideration of the biological relationships of specific population groups or general problems in human biology (e.g. human genetics, human growth and constitution, paleopathology, dental anthropology). Topic will be announced each semester. May be repeated for credit with different topics. Prerequisite: Anthropology 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 Graduates Only

601 Studies in Ethnology 3-4 hrs.
Intensive study of the principal questions of sociocultural theory. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

602 Studies in Archeology 3-4 hrs.
Advanced study in the major problem areas of prehistoric research. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

603 Studies in Physical Anthropology 3-4 hrs.
Advanced instruction and research in the principal problem areas in physical anthropology. May be elected as a graduate cognate course by students in other disciplines. May be repeated for credit when topics vary. Prerequisite: Consent of instructor.

Biology

Goodnight, Head; Professors Birch, Brewer, Dulin, Haas, Holt, Robert, Stott, Vander Beek, VanDeventer; Associate Professors Buthala, Engemann, Fowler, Friedman, Inselberg, Josten, Kirton, Lawrence, Pippen, B. Schultz, J. Schultz, Sud, Wood; Assistant Professors Beuving, Chang, DuCharme, Eisenberg, Ficsor, Olsen

Open to Graduates and Upperclassmen

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.

505 Advanced Genetics 3 hrs.
Special problems in genetics, including a study of the structure, function, change and transmission of the genetic material. Prerequisite: Biology 306.

506 Microbial Genetics 3 hrs.
A molecular approach to microbial genetics dealing primarily with bacterial and viral systems. Prerequisites: Biology 412 and a knowledge of organic chemistry or biochemistry.

508 Recent Advances in Biology 3 hrs.
Recent research findings at the frontiers of biology as reported in periodicals, symposia and biological meetings. Prerequisite: At least 12 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: Biology 306 or consent of instructor.

510 Virology 3 hrs.
A study of the structure and physiology of viruses. Relationship to host is stressed. Prerequisites: Biology 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: Biology 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; broad background in biology and chemistry desirable.

513 Pathogenic Microbiology 3 hrs.
This course deals with pathogenic microorganisms, infectious diseases, diagnostic tests and principles of immunology. Prerequisite: Biology 412 or equivalent.

514 Bacterial Physiology 3 hrs.
Lectures on bacterial cytology, metabolism, physiology and genetics with emphasis on biochemical aspects. Prerequisites: Biology 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: Biology 514.
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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>517</td>
<td>Cellular Physiology</td>
<td>3 hrs.</td>
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<tr>
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<td>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: Biology 317 or consent of instructor.</td>
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<tr>
<td>518</td>
<td>Endocrinology</td>
<td>3 hrs.</td>
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<td></td>
<td>A study of integrative physiology regulated by hormonal and neuroendocrine products. Prerequisite: Core Biology program, biochemistry and an advanced physiology course, or consent of instructor.</td>
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<tr>
<td>519</td>
<td>Comparative Animal Physiology</td>
<td>3 hrs.</td>
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<td></td>
<td>A study of the basic physiological processes as they occur in various groups of animals. Prerequisite: Biology 317 or equivalent.</td>
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<tr>
<td>520</td>
<td>Systematic Botany</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>The classification and relationship to vascular plants by field and laboratory studies. Attention is given to family characteristics, evolutionary trends and geographical distribution. Prerequisite: consent of instructor.</td>
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<tr>
<td>521</td>
<td>Phycology</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>Studies in the classification, structure, physiology, ecology and economic importance of the fresh-water algae. Prerequisite: Biology 301.</td>
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<tr>
<td>522</td>
<td>Phytogeography</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>A study of the geographical distribution of plants based on physical and ecological factors. Prerequisite: A course in systematic botany or equivalent.</td>
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<tr>
<td>523</td>
<td>Paleobotany</td>
<td>3 hrs.</td>
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<td></td>
<td>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: Biology 221 or equivalent.</td>
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<tr>
<td>524</td>
<td>Economic Botany</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>A study of plants useful to man for food, flavoring, drugs, clothing and building. Field trips required.</td>
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<tr>
<td>525</td>
<td>Biological Constituents</td>
<td>3 hrs.</td>
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<td></td>
<td>The chemical elements in plants and animals, as well as the synthesis, characterization, and degradation products of the more important compounds. Prerequisites: 12 hours of biology; one year of chemistry.</td>
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<tr>
<td>526</td>
<td>Mycology</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>Studies in the classification, structure, physiology, development and economic importance of fungi. Prerequisites: Biology 301 and 306, or consent of instructor.</td>
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<tr>
<td>527</td>
<td>Plant Physiology</td>
<td>3 hrs.</td>
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<td></td>
<td>Advanced investigations into plant functions. Basic principles are examined more intensively. Advantage is taken of the discoveries and unifying principles of modern biochemistry. Prerequisite: Consent of instructor.</td>
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<tr>
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<tr>
<td>528</td>
<td>Biology of Non-Vascular Plants</td>
<td>3 hrs.</td>
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<td></td>
<td>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 12 hours of biology or consent of instructor.</td>
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<tr>
<td>529</td>
<td>Biology of Vascular Plants</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>A detailed study of the morphology, life cycles, and evolution of vascular plants. Individual research required. Prerequisite: At least 12 hours of biology or consent of instructor.</td>
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<tr>
<td>530</td>
<td>Environmental Education</td>
<td>2 hrs.</td>
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<td>Survey of the whole field of conservation through lecture, laboratory, library, and field experience. Consideration will be given to ways of including conservation in the elementary and secondary curricula. Students will have contact with personnel of local, state, and federal conservation agencies. Designed primarily for teachers in service. Will not be counted for Biology major or minor. Prerequisite: Consent of instructor.</td>
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<tr>
<td>538</td>
<td>Field Natural History</td>
<td>3 hrs.</td>
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<td>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 12 hours of biology or consent of instructor.</td>
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<tr>
<td>539</td>
<td>Animal Behavior</td>
<td>3 hrs.</td>
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<td></td>
<td>Animal behavior with emphasis on evolution and ecology to include an introduction to the ethological point of view. Two student projects. Prerequisite: Biology 301 and consent of instructor.</td>
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<tr>
<td>540</td>
<td>Cell and Organ Culture Techniques</td>
<td>3 hrs.</td>
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<td>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.</td>
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<tr>
<td>541</td>
<td>Invertebrate Zoology</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>A study of the anatomy, physiology, embryology, and life history of representatives of the major groups of invertebrate animals. Prerequisite: At least 12 hours of biology or consent of instructor.</td>
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<tr>
<td>542</td>
<td>Entomology</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>A general study of insects, their structure, classification, life histories, ecological relationships and economic importance. Collection and identification of local species is required. Prerequisite: 12 hours of biology.</td>
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<tr>
<td>543</td>
<td>Protozoology</td>
<td>3 hrs.</td>
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<td></td>
<td>Field and laboratory studies of both free-living and parasitic protozoans, including taxonomy, morphology, life histories, ecology, heredity, evolutionary development. Prerequisite: Biology 301 or consent of instructor.</td>
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<tr>
<td>544</td>
<td>Developmental Biology</td>
<td>3 hrs.</td>
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<tr>
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<td>Theories and phenomena of differentiation, cytodifferentiation and morpho-</td>
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genesis; 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: Biology 343 or consent of instructor.

545 Histology 3 hrs.
A study of the microscopic structure of tissues and organs. Prerequisite: Biology 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.
Populations, life histories, anatomy, social behavior and environmental relationships of the birds of Southwestern Michigan. Shore and marsh birds are given special attention. Individual studies, bird banding, and the preparation of bird skins. Early morning field trips are scheduled. Prerequisite: Consent of instructor.

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 12 semester hours of biology.

552 Plant Ecology 3 hrs.
A consideration of the organization of vegetation and causal relationships between vegetation and environment. Prerequisites: Biology 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 12 hours of biology or consent of instructor.

554 Animal Physiology 3 hrs.
A study of cell, tissue and organ functions in the living animal with special emphasis on vertebrates. Prerequisites: Biology 317 and organic chemistry 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: Biology 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: Biology 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: Biology 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: Biology 301 and consent of Consortium Screening Committee. (Available only at Tropical Research Center, Belize, British Honduras)

559 Radiation Biology 3 hrs.
A study of the fundamentals of radiobiology including isotope technology, radiation measurements, radioactive decay, radiation and interaction in living matter, and health and safety regulations in the laboratory. Prerequisites: A minor in chemistry and consent of instructor.

561 Biology of Lower Vertebrates 3 hrs.
The biology of lower vertebrates with special reference to adaptation, evolution behavior and ecology of major groups. Classification, museum and field methods will be stressed in laboratory. Field trips required. Prerequisite: Biology 301 or equivalent.

562 Biology of Higher Vertebrates 3 hrs.
Continuation of Biology 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 Graduates 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.
Black Americana Studies

Black Americana Studies
Carlton L. Lee, Director

Arts and Sciences 500  Black Humanism 4 hrs.

An examination of the creative dimension of the Black Experience. Isolated and set apart in an enemy environment, Americans of African descent have been very creative in a wide range of human undertakings. This fact has been acknowledged and accepted, but this creativity has not had free range. One of the outcomes of the Black Revolution has been the emergence of "soul" as a concept to label the artistry and artfulness of Black American life. The creative dimension has also included science and technology. Black humanism is a way of getting at the life-styles of Black Communities and individuals and the viability of the Black Presence and Experience. What universal elements can be identified in "soul"? What would American life and culture be like without this elusive quality?

Arts and Sciences 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

Ifland, Chairman; Professors Harmon, Holkeboer, Nagler, Stenesh; Associate Professors Anderson, Berndt, Brown, Cooke, Foote, Houser, Howell, Kana'an, Lowry; Assistant Professors Kanamueller, McCarville, Steinhaus, Trimitsis, Warren

Open to Graduates and Upperclassmen

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: 24 hours of chemistry.

506  Chemical Laboratory Safety 1 hr.

A study of toxic, corrosive, flammable, explosive, electrical, mechanical, thermal, and radiant energy hazards frequently encountered in chemical laboratory work. Emphasis is placed on precautionary methods to avoid damaging accidents and on emergency procedures to apply when accidents occur. Prerequisite: 24 hours of chemistry.

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: Chemistry 431.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>520</td>
<td>Instrumental Methods in Chemistry</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>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: Chemistry 431.</td>
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</tr>
<tr>
<td>535</td>
<td>Introduction to Physical Chemistry</td>
<td>4 hrs.</td>
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<td></td>
<td>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: 16 hrs. of chemistry, Math 123, Physics 111 or 211.</td>
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</tr>
<tr>
<td>550</td>
<td>General Biochemistry</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>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: Chemistry 361 or 363, and 430.</td>
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</tr>
<tr>
<td>554</td>
<td>General Biochemistry</td>
<td>3 hrs.</td>
</tr>
<tr>
<td></td>
<td>Continuation of 550. Metabolism of carbohydrates, lipids, proteins and nucleic acids. Prerequisite: Chemistry 550.</td>
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<tr>
<td>555</td>
<td>Biochemistry Laboratory</td>
<td>3 hrs.</td>
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<td></td>
<td>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: Chemistry 550 or 450, and 222.</td>
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<tr>
<td>560</td>
<td>Qualitative Organic Analysis</td>
<td>3 hrs.</td>
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<td></td>
<td>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: Chemistry 361 or 363, and 24 hours of chemistry.</td>
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</tr>
<tr>
<td>562</td>
<td>Advanced Organic Chemistry</td>
<td>3 hrs.</td>
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<tr>
<td></td>
<td>Covers selected topics such as organometallic compounds, heterocyclic compounds, dyes, introduction to photochemistry, organo-silicon compounds, etc. Prerequisite: Chemistry: Chemistry 361 or 363.</td>
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<tr>
<td>580</td>
<td>History of Chemical Theory</td>
<td>2 hrs.</td>
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<td></td>
<td>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: 16 hours of chemistry including at least one semester organic.</td>
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<tr>
<td>590</td>
<td>Special Problems in Chemistry</td>
<td>2 hrs.</td>
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<tr>
<td></td>
<td>Research work on a problem in chemistry in association with a faculty member. May be repeated for credit. Prerequisites: 24 hours of chemistry, with approval of the Department Chairman and faculty director.</td>
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</tbody>
</table>
Open to Graduates Only

601 Graduate Seminar
Graduate seminar in chemistry. Required of all candidates for advanced degrees in chemistry. (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: Chemistry 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: Chemistry 510.

612 Topics in Inorganic Chemistry
A cooperative investigation of one or more topics of major consequence contemporary inorganic chemistry. Aspects of the topic will be developed from primary sources and presented by the students. Prerequisite: Chemistry 610 or 611.

613 Current Developments in Chemistry
Five or six new developments selected from significant advances in chemistry will be considered. Course content will vary from year to year with growth of the science. Prerequisite: 16 hours of chemistry.

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: Chemistry 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: Chemistry 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: Chemistry 520.

626 Chemical Instrumentation 3 hrs.

Principles and characteristics of construction and design of chemical and optical instruments. Prerequisite: Chemistry 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 Boltzmann distribution law and its applications to kinetic molecular theory and statistical mechanics. Prerequisite: Chemistry 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: Chemistry 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: Chemistry 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: Chemistry 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: Chemistry 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: Chemistry 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: Chemistry 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: Chemistry 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: Chemistry 550.

661 Organic Reactions 3 hrs.
An intensive survey of organic reactions with emphasis on preparative scope and utility. The following types are considered: aliphatic substitution, oxidation, reduction, condensation, etc. Prerequisite: Chemistry 361 or 363.

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: Chemistry 361 or 363.

663 Mechanisms in Organic Chemistry 3 hrs.
Free radical, ionic and multicenter reaction types are considered. The influence of structure and media on reactivity is included. Prerequisites: Chemistry 361 or 363, and 431.

669 Topics in Organic Chemistry 3 hrs.
The course content will vary with needs of students and special competency of instructor. Prerequisite: Chemistry 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 on a "C" card.
Communication Arts and Sciences

Brown, Chairman; Professors Buys, Helgesen, Kuykendall, York; Associate Professors Crane, Dieker, Fleischhacker, Furbay, Grandstaff, Herman, Jaska, Rossman, R.F. Smith, R.L. Smith, Stech, Stillwell, Walton; Assistant Professors Karsten, Pagel, Robeck; Instructor Cottrell

Open to Graduates and Upperclassmen

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

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 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

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 Speech 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 Speech 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 Speech 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 15 hours of work in the CAS Department 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 dramatics with children as a classroom activity in elementary grades. Observation of demonstration groups. Emphasizes creative dramatics and includes the creative approach to formal dramatics.

570 Studies in Communication: Variable Topics
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 570. In addition to the topics listed, additional topics are offered from time to time, and will be listed in the course schedule.
Interpersonal Theories of Communication
b. Personality and Communication
c. Non-Verbal Communication
d. Attitude Change and Social Influence
e. Theory and Research in Sensitivity Training
f. Semantics
g. Introduction to Communication Research

598 Independent Studies 1-4 hrs.
A program for advanced students with an interest in pursuing independently a program of readings, research or projects in areas of special interest. To be arranged in consultation with a member of the staff and the chairman of the department.

Open to Graduates 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 Seminar in Summer Theatre 5 hrs.
For graduate students enrolled in the Summer Ensemble Theatre program. Theoretical considerations of all phases of theatre in conjunction with laboratory experiences in working with the production of a number of plays.

630 Seminar in Rhetoric: Variable Topics 3 hrs.
Explorations into selected topics in contemporary rhetoric. Possible topics, each of which may be taken for credit, include the following:

a. Rhetoric or Confrontation
b. Political Rhetoric
c. Philosophy of Dialogue

631 Group Problem Solving 3 hrs.
Study and practice of the dynamics of group of various kinds, as well as the methods of arriving at groups decisions. Includes the understanding of leader and participant roles.

640 Seminar in Mass Communication: Variable Topics 3 hrs.
Exploration of topics related to mass communication theory, process and application. Topics vary from semester to semester and the course is repeatable for credit. Possible topics include the following:
a. Mass Entertainment
b. Mass Communication and Social Change
c. Mass Communication and Education
d. International and Comparative Systems of Mass Communication

660 Seminar in Speech 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

671 Practicum in Communication Research 3 hrs.
Selecting, formulating, designing, conducting and reporting communication research. Admission only by consent of instructor.

Economics
Bowers, Head; Professors Carlson, Copps, Ho, Junker, Ross, Zelder; Associate Professors Bradley, Eckstein, Gardner, Kripalani, Sichel, Wend; Assistant Professors Emerson, Zinn; Instructors Morreale, Warren

Study and research on various major economic theories, schools of thought, and theorists. Different topics will be considered from semester to semester and will be announced in advance. Students may repeat the course for additional credit. Prerequisites: Economics 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.

506 Economic Methodology 4 hrs.
A study of the methodological underpinnings of extant economic theory. Special emphasis will be paid to the ways in which such concepts as causality, probability, deduction, induction, prediction, and proof enter into the logic discovery and the logic of confirmation. Prerequisites: Econ. 201 and 202, or consent of instructor.

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.

513 Economic Security 3 hrs.
An analysis of the problems of the individual workers and the efforts of the government to aid in the solution of these problems. It deals with unemployment, old age, benefits and medical care.

514 Labor and Government 3 hrs.
Deals with the government’s role in the problems arising from labor-management relations and from labor’s search for security. It covers the court’s attitude toward labor organization from the rule of conspiracy through Taft-Hartley. It also includes protection legislation and the development of security legislation.

525 State and Local Government Finance 3 hrs.
Practices, effects, and issues in state and local expenditure, taxation, and borrowing, with particular attention to property and sales taxation, to the financing of education and highways, and to intergovernmental fiscal relations. Prerequisites: Econ. 201 and 202.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>526</td>
<td>The Urban Economy</td>
<td>3 hrs.</td>
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<td></td>
<td>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.</td>
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</tr>
<tr>
<td>539</td>
<td>Economic Anthropology</td>
<td>3 hrs.</td>
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<td>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.</td>
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<tr>
<td>542</td>
<td>Business and Government</td>
<td>4 hrs.</td>
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<td>A study of the regulatory policies of government and their impact on private enterprise. The course seeks to explain the need for regulation, and to provide an analysis and evaluation of the various laws from the viewpoint of encouragement, subsidization and control. Special attention will be directed to certain aspects of concentration of economics power, public ownership and nationalization programs. Prerequisites: Econ. 201 and 202. Work in political science may be substituted in special cases by permission of the instructor.</td>
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<tr>
<td>545</td>
<td>The Economics of Location</td>
<td>3 hrs.</td>
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<td>The application of economic analysis to the study of the location of economic activities as determined by transportation and the spatial distribution of resources and markets. Consideration is given to selected industry studies; problems in urban land usage, congestion, and the environmental effects of various economic activities. Prerequisites: Econ. 201 and 202.</td>
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<td>The course is designed to study the pure theory of international trade and trade policy. Prerequisite: Econ. 480 or consent of instructor.</td>
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<tr>
<td>583</td>
<td>Studies in Economic Planning</td>
<td>3 hrs.</td>
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<td></td>
<td>A study of the origin and development of macroeconomic planning in socialist countries, an examination of the general methodological and theoretical foundations of planning including the planning of production, investment, labor, consumption, monetary flows, prices and macroeconomic balances.</td>
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<tr>
<td>585</td>
<td>The Economics of Sub-Saharan Africa</td>
<td>3 hrs.</td>
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<td>A survey of the indigenous economic systems of Sub-Saharan Africa and how these systems have been modified over time by the intrusion of various foreign populations. The economic progress will be examined and a detailed investigation of economic, social, and political obstacles to further progress will be made. Not open to students who previously received credit in 585 Economics of North Africa and the Near East. Prerequisites: Econ. 201 and 202.</td>
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<tr>
<td>586</td>
<td>The Economics of the Soviet Union and Eastern Europe</td>
<td>3 hrs.</td>
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<td>A study of Soviet and East European planning practices including an exami-</td>
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</table>
ination of the development in commerce, agriculture and industry in these areas. Trade among the several East bloc nations will be covered. Prerequisites: Econ. 201 and 202.

587 Studies in Asian Economics 3 hrs.

The course concentrates on the study of the Japanese. Chinese and Indian economic systems. These models are then applied as basis of comparison to the other Asian economics. Prerequisites: Econ. 201 and 202.

588 Economic Development 4 hrs.

An analysis of the economic factors such as population, resources, innovation and capital formation which affect economic growth. Selected underdeveloped areas will be studied to understand the cultural pattern and economic reasons for lack of development and the steps necessary to promote economic progress. Special attention will be paid to evaluating the effectiveness of the United States foreign-aid program and examining the issues arising as a result of the conflict with the U.S.S.R. Prerequisites: Econ. 201 and 202.

589 The Economics of Latin America 3 hrs.

A survey of the principal economic problems of the Latin American countries. A substantial portion of the course will be devoted to case studies of the development of particular countries. Prerequisites: Econ. 201 and 202.

590 Contemporary Communism—A Survey 2 hrs.

Designed to give the student an insight into the range of problems that resulted from the spread of Communism in the wake of World War II. The philosophy, economic doctrines, and government of Communism will be covered.

598 Readings in Economics 1-3 hrs.

An independent program of study for qualified advanced students to be arranged in consultation with the instructor. Prerequisite: Consent of department head.

Open to Graduates Only

505 Economic Theory for Business 3 hrs.

A rigorous examination of micro and macro economic theory, stressing the relationship of theory with business institutions and practice. Economic theory will also be related to operations research. Closed to students with Economics 201 and 202. Prerequisite: Consent of the instructor.

600 Applied Economics for Management 3 hrs.

The course examines the relationship between the theory of the firm and recent developments in the area of operations research. Among the concepts and tools discussed are: game theory; linear programming; capital budgeting; inventory theory; input-output analysis; price policy; cost analysis. This course may not be taken for credit if a student has received credit for Economics 400.

601 The American Economy 3 hrs.

A concentrated course in basic economic concepts with special emphasis on those areas most beneficial to teachers of social studies.
603 Advanced Price Theory  
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.

604 Economic Problems  
Some contemporary economic problems in such areas as economic security, labor relations, finance matters related to public expenditures and taxation, governmental controls and the balance between freedom and order are analyzed and studied. Some previous work in economics is desirable but not mandatory.

606 Seminar in the Evolution of Economic Thought  
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 9 credit hours including Econ. 201 and 202.

609 Seminar in Economics  
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  
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  
An exploration of issues in taxation, government spending, fiscal policy, and inter-governmental relations with emphasis on recent literature in those areas. Prerequisites: Econ. 201 and 202.

650 Industrial Organization and Public Policy  
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  
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: 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.

English
Miller, Chairman; Professors Callan, Combs, Galligan, R. Goldfarb, Holaday, Macrorie, Malmstrom, Nelson, Sadler, Woods; Associate Professors N. Carlson, Davis, Fritscher, Gianakaris, C. Goldfarb, Phillips, Shafer, Small, K. Smith, Stallman, Stroupe; Assistant Professors Cohn, Cooley, Cooney, Davidson, Dean, Douma, Fisher, Gingerich, Grant, Hinkel, Johnston, LaRue, Seiler, Stott, 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 Graduates and Upperclassmen
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.

120
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>530</td>
<td>Medieval Continental Literature in English Translation</td>
<td>4 hrs.</td>
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<td>Readings in English translation, in medieval European literature exclusive of England.</td>
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<td>531</td>
<td>Chaucer</td>
<td>4 hrs.</td>
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<td></td>
<td>Readings in Chaucer, with emphasis on <em>Troilus and Criseyde</em> and <em>The Canterbury Tales</em>.</td>
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<td>532</td>
<td>Sixteenth Century Literature</td>
<td>4 hrs.</td>
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<td></td>
<td>Selections from major works in both prose and verse, by such writers as Wyatt, More, Sidney, and Spenser.</td>
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<td>533</td>
<td>Seventeenth Century Literature</td>
<td>4 hrs.</td>
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<tr>
<td></td>
<td>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.</td>
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<tr>
<td>534</td>
<td>Neo-Classical Literature</td>
<td>4 hrs.</td>
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<td></td>
<td>English literature 1660–1730 with major emphasis on Dryden, Pope, and Swift.</td>
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<tr>
<td>535</td>
<td>Eighteenth Century Literature</td>
<td>4 hrs.</td>
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<td></td>
<td>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.</td>
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<tr>
<td>536</td>
<td>Romantic Literature</td>
<td>4 hrs.</td>
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<td></td>
<td>Readings in poetry and criticism, with emphasis on Blake, Burns, Wordsworth, Coleridge, Scott, Byron, Shelly, Keats.</td>
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<tr>
<td>537</td>
<td>Victorian Literature</td>
<td>4 hrs.</td>
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<td></td>
<td>Readings emphasizing Carlyle, Mill, Dickens, Thackeray, Tennyson, Browning, and Arnold.</td>
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<tr>
<td>538</td>
<td>Modern Literature</td>
<td>4 hrs.</td>
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<td>Readings in major authors of the 20th century with some attention to precursors of the modern movement.</td>
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<tr>
<td>543</td>
<td>Elizabethan and Jacobean Drama</td>
<td>4 hrs.</td>
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<td></td>
<td>Studies in the non-Shakespearean drama in England during the Elizabethan and Jacobean periods, by such dramatists as Kyd, Marlowe, Jonson, Webster, Journeur and Ford.</td>
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<tr>
<td>554</td>
<td>Milton</td>
<td>4 hrs.</td>
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<td></td>
<td>A study of Milton's major works, with emphasis on <em>Paradise Lost</em> and the major poetry.</td>
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<tr>
<td>555</td>
<td>Studies in Major Writers</td>
<td>4 hrs.</td>
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<td></td>
<td>Study of the works of classical, European, British, or American writers. Limited to one or two authors.</td>
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566 Creative Writing Roundtable 4 hrs.
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.

574 Linguistics for Teachers 4 hrs.
An application of the concepts of linguistics to the teaching of language, literature, composition and reading in the English curriculum. Prerequisite: English 270 or an Introduction to Linguistics course or permission of an English advisor.

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 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: English 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: English 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.

Geography
Horst, Chairman; Professors Heller, Jackman, Kirchherr, Vuicich; Associate Professors Eichenlaub, Erhart, Raup; Assistant Professors Dickason, Micklin, Quandt, Stoltman; Instructor Stolle

COURSES IN SYSTEMATIC GEOGRAPHY
Open to Graduates and Upperclassmen

540 Political Geography 3 hrs.
This course introduces the principles and concepts of political geography as they interact in the evolution of the modern political state. Geopolitical concepts of boundaries and frontiers, the “organic” state, Geopolitik and theories of global relationships are treated in some detail.

541 Geographic Foundations of National Power 3 hrs.
In contrast to the principles and concepts treated in Geography 540 this course takes up the applications of political geography to world power relationships; analyzes the components of national power in their physical and cultural relationships; concepts of autarky, national determinism, possibilism, and supra-nationalism will be studied.

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 Agricultural Geography 3 hrs.
A course designed to acquaint the student with world patterns of farming
activity. The first part of the course is concerned with the description and analysis of: (a) the distribution of major world crops and domestic animals, and (b) the most common combinations of crops and livestock on farm units. The second part of the course deals with the spatial organization of agriculture in certain selected areas. Prerequisite: Geography 244 or consent.

545 Manufacturing Geography
3 hrs.

Studies in the specific location and general distribution of selected industries with particular consideration being given to the interplay of technological, economic, and political elements affecting spatial patterns of industry. Both the traditional and current theoretical approaches to geographic investigation of industries will be critically examined. Prerequisite: Geography 244 or consent.

546 Transportation Geography
3 hrs.

Study of the space-adjusting industries which link global production and consumption. Emphasis is placed upon (1) historical evolution or transport systems in developed nations, (2) problems focusing upon the creation of effective transport systems in the underdeveloped world, (3) the role of transportation in location theory, (4) theory and technique in transport analysis, (5) the urban transportation problem—structure and alternatives, and (6) competitive and complementary characteristics of transport modes under differing political systems. Prerequisite: Geography 244 or consent.

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: Geography 350 or consent.

556 Land Use Planning
3 hrs.

An examination of the philosophy and role of land-use planning at the national, regional, and local levels; study of those decisions involved in the establishment and design of long-range plans for land utilization, and methods of implementation.

570 Urban Geography
4 hrs.

The study of urban settlements as distinctive geographical units. Among the topics considered are (1) the historical geography of urbanization, (2) characteristics of urban forms in selected world regions, (3) approaches to the functional classification of cities, and (4) the analysis of land use patterns and transportation in the modern city and metropolitan region. Special assignments are designed to acquaint the student with source materials and field techniques utilized in urban research. Prerequisite: Geography 244 or a background in geography or the social sciences is recommended as preparation for this course.

Open to Graduates Only

620 Seminar in Physical Geography
2-3 hrs.

A review of the current literature and recent developments in the disciplines which become synthesized in physical geography. Each student will explore some aspect of the field in depth. Prerequisites: Geography 621 and 622 or consent.
621 Studies in Climatology and Meteorology 3 hrs.
Studies at an advanced level in climatology and meteorology. Examination and application of dynamic, complex, and synoptic methods of climatic description. Particular emphasis is given to regional climatic and meteorological phenomena and their relation to the general atmospheric circulation. Prerequisites: Geography 105 and 225, or consent.

622 Studies in Soils and Vegetation Geography 3 hrs.
Soil and vegetation patterns are studied to develop the principles and explain the factors which account for areal variation in soil-plant associations. Prerequisites: Geography 105, Agriculture 320, and Biology 100 and 101, or 107; or consent.

640 Seminar in Political and Military Geography 2-3 hrs.
A review of current literature and recent development in both political and military geography. The geopolitical and geostrategic aspects common to both will be emphasized. Prerequisites: Geography 540, 541, and background in history, politics, and economics; or consent.

642 Seminar in Historical and Cultural Geography 2-3 hrs.
A review of current literature followed by selection and study of some aspect of the subject in depth. Prerequisite: Geography 542 and 543, or consent.

644 Seminar in Economic Geography 2-3 hrs.
A review of the current literature with emphasis on some important development or aspect of economic geography such as location theory, marketing, or water management. Prerequisite: Geography 244 or consent.

645 Geographical Factors in the Development of Non-Western Societies 3 hrs.
Critical examination of various types of non-Western societies particularly agrarian systems based largely on intensive subsistence or plantation agriculture; analysis of the role of irrigation and nomadism in the development of national states; study of the locational and institutional factors which inhibited the influx of Western ideas (such as the Industrial Revolution); study of transport systems and the impact of transport technology on the development of non-Western states; and consideration of origin and spread of religions and their influence on the development of non-Western cultures.

646 Analysis of Primary Resource Utilization in Developing Nations 3 hrs.
Critical examination of the resource base of developing nations in the tropical and sub-tropical realms, with particular consideration being given to political, economic, and cultural forces affecting resource development. General themes will be developed through a study of current approaches in the measurement and mapping of resources, and examination of representative plans for regional and economic development. Students will prepare case studies in their area of concentration.

647 Developing Societies in the World Geopolitical Scheme 3 hrs.
Critical examination of those aspects of emerging societies which are significant in current ideological conflicts and power struggles. Various concepts such as neutralism, nationalism, neo-colonialism, neo-mercantilism and supre-nationalism
are studied in the frame of their most recent geographic connotations. The emphasis is placed upon political-geographic interactions throughout the world.

670 Seminar in Urban Geography 2-3 hrs.

A review of the current literature and recent methodological developments in the field of urban geography. Prerequisite: Geography 570 or consent.

COURSES IN REGIONAL GEOGRAPHY

Open to Graduates 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 Geography 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 Geography 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 Geography 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 Geography 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 Geography 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 Geography 389.
516 Middle East and North Africa

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 Geography 387.

517 Middle and South Africa

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 Geography 386.

518 The Pacific Realm

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 Geography 385.

519 East Asia

A graduate level introduction to selected physical and cultural environments of the Far East (China, Korea, Mongolia, and Japan). Characteristics and interrelationships of population growth, the development of the agrarian base and the utilization of industrial resources are examined in view of evolving political and cultural patterns. Three lectures and a weekly seminar. May not be taken for credit if student has previously received credit for Geography 388.

520 South Asia

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 Geography 390.

Open to Graduates and Upperclassmen

542 Historical Geography of North America

A study of environmental, economic, and cultural factors as they combined to influence routes of exploration and trade, settlement patterns, regional economies, and sectional identities in North America.

550 Studies in Historical Geography

Studies of geographic and related features which have combined to influence the course of historical development. This course will concentrate on a particular region and/or period of time during each semester in which it is offered. Each specialization will be designated in the class schedule.
Open to Graduates Only

609 Studies in Regional Geography 3 hrs.

An investigation of selected topics in physical and human geography of one of the major regions, i.e., Latin America, Anglo-America, Europe, Africa, Asia, Southwest Pacific, or the Northlands. Regional concentration will vary from semester to semester, with the region being indicated at time of enrollment. Prerequisite: An appropriate introductory regional course at either the undergraduate or graduate level.

610 Seminar in Regional Geography 2-3 hrs.

An intensive study of selected problems of various world regions such as Latin America, Anglo-America, Europe, Africa, Asia, Southwest Pacific, or the Northlands. Regional specialization will vary from semester to semester, permitting students to repeat the course for credit as long as subject matter is different. Subject for any particular semester will be indicated at time of enrollment. Prerequisite: An appropriate introductory regional course at either the undergraduate or graduate level.

695 Background of Contemporary Problems in Michigan 3 hrs.

An intensive interdepartmental course designed to explore in depth the historical and geographical backgrounds of several outstanding present-day problems in Michigan in the areas of resource management, agriculture, industry, and urban-rural conflicts. Resource people from other disciplines, governmental agencies and business will provide for a well-rounded treatment of the major problems of Michigan. Prerequisite: Geography 311 or History 310.

COURSES IN GEOGRAPHIC METHODOLOGY AND RESEARCH

Open to Graduates and Upperclassmen

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: Geography 560 or consent.

567 Field Mapping and Mensuration Techniques (Phy. Sci. Credit) 3 hrs.

An introduction to the practical methods by which accurate, large-scale maps are constructed. Students are taught to determine the location of points in terms of distance and direction from other points by use of: the pace-and-compass method.
chaining and plane tabling with open-sight and telescopic alidades. Additional environment information is added to the map, at points, by determining altitude, slope of the land surface and hydrographic characteristics. Methods of sampling other continuous phenomena such as soils and vegetation are introduced.

568 Quantitative Methodology in Geography (Phy. Sci. Credit) 3 hrs.

The application of quantitative concepts and methods to the solution of geographic problems. Critical review of research in quantitative geography ranging from the use of common statistical techniques to methods of model formation in the analysis of spatial interaction. Prerequisite: A course in statistics or consent.

580 Advanced Cartography (Phy. Sci. Credit) 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: Geography 560 or consent.

582 Aerial Photograph Interpretation (Phy. Sci. Credit) 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 Graduates 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.
Geology

Straw, Acting Chairman; Professor Schmaltz; Associate Professors Davis, Grace, Kuenzi, McGehee, Passero; Assistant Professor Sharmberger

Open to Graduates and Upperclassmen

502 Special Problems in Earth Science 2-4 hrs.
Individual problems involving topical reading and/or research problems in earth sciences. May be repeated for credit. Prerequisite: Consent.

520 Economic Geology 3 hrs.
Origin, occurrence, and utilization of metallic and non-metallic mineral deposits, mineral fuels, and water. Lecture 3 hours a week. Prerequisite: Geology 335 or consent of instructor.

532 Geomorphology 3 hrs.
A systematic study of the development of land forms as created by the processes of vulcanism, gradation, and diastrophism with interpretation of topographic and geologic maps, and aerial photographs. Prerequisite: Geology 231 or consent.

533 Invertebrate Paleontology 4 hrs.
Morphology, classification, evolution, and stratigraphic distribution of major invertebrate fossil groups. Three lectures and a three-hour laboratory. Prerequisite: Geology 231 or consent.

534 Vertebrate Paleontology 4 hrs.
Comparative morphology, classification, stratigraphic distribution, and evolution of fossil fish, amphibians, reptiles, mammals, and birds. Three lectures and a three-hour laboratory. Prerequisite: Geology 231 or consent.

535 Stratigraphy and Sedimentation 4 hrs.
Principles of stratigraphy and sedimentation including correlation, facies, stratigraphic nomenclature, sedimentary petrology, processes and environments. Three lectures and a three-hour laboratory. Prerequisites: Geology 231 and consent.

536 Glacial Geology 3 hrs.
A study of the mechanics of glacier movement, processes of glacial erosion and deposition, and the distribution of glacial features in space and time. Special emphasis will be placed on the glacial geology of the Great Lakes area. Prerequisites: Geology 231 and consent.

Open to Graduates 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: 532 or consent.

620 Advanced Oceanography 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: Geology 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 Earth Science M.A. or Teaching of Science M.A.

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 6 hours).

650 Topics in Earth Science 2-4 hrs.
An intensive study of specific subjects in the area of Earth Science as listed. Prerequisite: Consent of instructor. Subject offered during a semester or term will be announced in advance and selected from:

- Geochemistry
- Hydrogeology
- Igneous and Metamorphic Petrology
- Mineral Analysis
- Sedimentary Petrology
- Geotectonics

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.

History

Breisach, Chairman; Professors Beech, Brown, Brunhumer, Castel, Elsasser, Hammer, Maier, Mange, Mowen, Nahm, Sommerfeldt; Associate Professors Burke, Carlson, Cordier, Gregory, Hahn, Hawks, Nodel, Schmitt; Assistant Professors Chuang, Davis, Hannah, Houdek, Pattison

I. COURSES DEALING WITH A RESTRICTED CHRONOLOGICAL PERIOD OR SPECIAL PHASE OF HISTORY

Open to Graduates and Upperclassmen

A. INTELLECTUAL HISTORY

506 Main Currents of Early Western Thought 3 hrs.
In this course we will consider the ideas and values which are the legacy of the early West to modern man. We will study ancient Near Eastern myth; the Jewish concepts of God, man, and time; the Greek philosophical mind; and the early Christian religion. We will also see how these elements were combined in the
middle ages to form something new, the "West," with its ideas of progress and order, science and faith, rationalism and mysticism.

**507 Main Currents of Modern Western Thought** 3 hrs.

The nature and prospects of intellectual history; the Renaissance and Reformation and the transition from medieval values; the scientific revolution of the 17th century; the baroque; the 18th-century Enlightenment; 19th-century romanticism, liberalism, nationalism, materialism and socialism; formation and leading features of the contemporary world view.

**508 Myth and Reality in the American Past-I** 3 hrs.

Americans have often portrayed their past in light of their ideals rather than historical realities. This course will explore the ideas and fancies of ordinary people, as well as of writers, politicians, preachers, and scholars as they define the American Dream. Students in History 508 will examine the relationship between the earliest American Dreams and contemporary problems. History 509 will carry the story forward from 1890.

**509 Myth and Reality in the American Past-II** 3 hrs.

Americans have often portrayed their past in light of their ideals rather than historical realities. This course will explore the ideas and fancies of ordinary people, as well as of writers, politicians, preachers, and scholars as they define the American Dream. Students in History 508 will examine the relationship between the earliest American Dreams and contemporary problems. History 509 will carry the story forward from 1890.

**B. UNITED STATES HISTORY**

**510 Field Study in Michigan History** 3 hrs.

**511 Historical Museums Workshop** 3 hrs.

Lectures, demonstrations, field trips, readings, discussion, and work experiences in museum theory and technique introduce the student to the types of work curators of historical museums do. Not offered on a regular basis.

**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 Malcolm X challenge widely-held beliefs about the past and provide fresh perspectives on contemporary America.

**516 The History of the United States Constitution** 3 hrs.

The Constitution is the Supreme Law of the Land. But judges apply that law. Consequently judges exercise far more power in the United States than in any other nation. How and why did this occur? And with what results, good and bad?

**518 History of United States Foreign Relations** 3 hrs.

While this course traces the full scope of American foreign relations, from the
American Revolution to the present, it emphasizes diplomacy of the twentieth century. The course gives attention to major diplomatic problems, but it also considers such themes as the effect of personality and politics on foreign policy, and the various “schools” of diplomatic thought.

519 America and War

The United States regards itself as a “peace-loving” nation. Yet it was born of war, has survived by war, and in modern times has been almost constantly at war. A knowledge of the military history of the United States is a key to understanding all of its history, both as it has unfolded and as it is unfolding.

520 Colonial America

The American colonies as part of the British empire; their founding, their political, social, and economic growth to the eve of the American Revolution.

521 The Era of the American Revolution 1763-1789

The causes, development, nature, and consequences of the American Revolution. Emphasis is given to the factors which induced the British to alter existing relationships with the American colonies; and the reasons for, and the variety of American responses are examined. Efforts made by both British and American leaders to preserve the imperial connection are studied along with the gradual development of the American movement to independence. Military and diplomatic aspects of the Revolution are examined; and an attempt is made to evaluate societal changes brought by American independence.

522 The Age of Democracy and Expansion, 1798–1848

The United States is a democracy. Or is it? This course attempts to answer that question by examining the origin and development of American political institutions during a time that is much like our own—that is, a time of rapid changes and intense ideological, racial, international, sectional and personal conflict.

523 (629) The American West

A study of the exploration, conquest, and occupation of the North American continent. Among the topics included are Indian relations, the fur trade, land disposition, the cattle frontier, the mining frontier, and problems of law and order.

524 The Civil War and Reconstruction

Between 1861 and 1865 over 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 (532) The Emergence of Modern America, 1877–1914

This course will focus on the causes and consequences of industrialization, urbanization, progressivism, and the concurrent revolutions in agriculture, transportation, and communications. Attention will also be given to changing attitudes and values, the problem of generalization, and to the anonymous American.

526 (532/533) The U.S. between World Wars, 1914–1940

For most Americans the twentieth century began with World War I; an examination of our response to the historical realities of the ensuing era can serve to clarify the dimensions and complexities of contemporary America. This course will
emphasize the anonymous American through his political leaders, social and economic aspirations, religious devotions, international hopes and fears, and popular entertainments.

527 (533) 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.

C. HISTORY OF EUROPEAN NATIONS

534 Medieval France  3 hrs.

A study of the formation of the French people and nation during the thousand years which followed the fall of the Roman Empire in the 5th century A. D. Threatening this process were the disruptive forces of provincialism and invasion by foreigners. Contributing to its success were the growth of a unified church, a national monarchy, the expansion of a vigorous rural and urban economy, and the development of a national language and literature.

535 Medieval England  3 hrs.

The story of the growth of the English people from scattered tribes of Anglo-Saxon invaders in the 5th century into one of the most highly organized European nations by the 15th century. Basic to this growth were the creation of a powerful kingship based on a common law and Parliament, the establishment of a vigorous national church, the prosperity of countryside and town, and the development of a national language and literature.

536 Tudor-Stuart England: The Era of the Monarchy  3 hrs.

A study of the period when Great Britain breaks with her medieval past and becomes one of the most modern states in Western Europe after having progressed under the strong Tudor rulers, suffered under the obstinate early Stuarts, begun an empire, survived civil war and the Cromwellian republic, restored the monarchy under the later Stuarts, and plunged into the revolution which produced the Bill of Rights and representative government under a constitutional monarchy.

537 Hanoverian England: The Era of the Aristocracy  3 hrs.

The study of Great Britain during the years when, guided by the aristocratic classes in cooperation with a limited monarchy, internal stability was established; the economic revolution and the unforeseen problems which it created were begun; her place as a major European power was guaranteed; her North American empire was lost; and the threat to her position by the French Revolution and Napoleon was met successfully.

538 Victorian England: The Era of the Middle Class  3 hrs.

A look at the years of Victoria's long reign as Great Britain attempted to solve the problems caused by the French and Economic Revolutions through parlia-
mentary reform and additional democracy, resulting in the transition from a rural to an urban society; the rise of the middle class to a position of dominance; and the emergence of Britian as the greatest industrial nation and the most powerful empire in the world.

539 Contemporary Britain: The Era of the Common Man 3 hrs.

An exploration of the history of Great Britian 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 with all members equal among equals organized, 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 Tsarist Russia: Society and Culture 3 hrs.

Westernization, emancipation of the peasants, revolutionary movements, and the spiritual evolution of the Russian people during the eighteenth and nineteenth centuries.

541 The Soviet Union in World Affairs 3 hrs.

Consideration is given to the various factors constituting the background necessary for the appreciation of the role of the Union of Soviet Socialist Republics in world affairs from 1917 to the present time. This includes a study of the geographical, ideological, political, economic, military, social, and human aspects of Soviet foreign policy. The nature of Soviet foreign policy as affected by the national and international events during the leadership of Lenin, Stalin, Khrushchev, and Brezhnev-Kosygin is studied.

542 Nationalities in the Soviet Union 3 hrs.

This course constitutes a study of the historical background and contemporary status of the principal ethnic 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 (664) Modern France (France Since Napoleon) 3 hrs.

An examination of factors in French life in the 19th and 20th centuries fostering stability and instability, growth and stagnation, harmony and conflict, triumph and tragedy.

D. EUROPEAN HISTORY

551 Imperial Rome (The First Century) 3 hrs.

A study in depth of Roman politics and culture from the close of the Republic through the reigns of the emperors Augustus, Tiberius, Caligula, Claudius, and Nero. Emphasis will be placed on use of original sources in shaping the history of the century 300 B.C. to 70 A.D.

552 The Medieval Church 3 hrs.

Christianity is the most obvious and perhaps, the most important element in
early Western culture. In this course we are not so much interested in the Church as an institution as in the growth of Western culture in the age—from the time of Jesus to that of Luther—in which Christian values were so important in everyday life. Among the topics we will consider are the impact of the classical and Germanic cultures on the church, the church and feudalism, church-state relations, the rise and fall of papal theocracy, scholasticism, and mysticism. The emphasis throughout will be on topics most important for the understanding of our own values and society.

553 Medieval Economy and Society 3 hrs.

In the 5th century A.D. Germanic invaders inherited a Roman Empire which was gradually falling into ruin. A thousand years later Western Europe boasted a greatly increased population and a thriving economy based on a vigorous agriculture and a dynamic trade and urban life. This course studies the factors underlying this growth: the development of an aristocratically dominated society, the expansion of agriculture depending on an improving technology and manorial exploitation of the land, and the formation of an aggressive urban class of merchants and artisans.

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

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

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.

E. LATIN AMERICA

571 Mexico: The Building of a Nation

A review of the 19th century groupings 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

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.

F. THE FAR EAST

580 Traditional China

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

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

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)

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

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.

G. AFRICA

587 Ancient and Medieval Africa 3 hrs.

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

588 Modern Africa 3 hrs.

Historical background of the major issues of contemporary Africa, including colonialism and neo-colonialism, Pan-Africanism, and nationalism. Examination of major problems including the Congo, Nigerian civil war, Algerian revolution, minority rule in southern Africa, etc.

II. GENERAL COURSES

592 Historical Literature 3 hrs.

Historical writings arise from a curiosity about the human condition. Can man do good? What is the source of evil in his life? What happens to man in social situations? Does man make his own Fate and does he deserve it? Historical writings suggest the problems in any search for truth, its description, and its evaluation. The course includes a survey of historical writings and an opportunity to read from within their wide variety.

593 Philosophy of History 2 hrs.

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

594 War in the Modern World 3 hrs.

Select topics in modern war and current military developments. Topics for each semester will appear in the Schedule of Classes. The course may be repeated for separate credit as long as the topic varies.

595 History of War 3 hrs.

The history of war from the age of Louis XIV to the era of the World Wars. An examination of the evolution of war and the role of conflict in international relations.
III. SPECIAL COURSES

500 Problems in History 2-3 hrs.

The course is designed to show the usefulness of the historical approach for the understanding of the great and relevant issues confronting modern man. Multiple sections will be offered, each of which may deal with a different topic as listed in the Schedule of Classes.

IV. COURSES OPEN ONLY TO GRADUATE STUDENTS

A. STUDIES IN HISTORY

Courses in which, through lectures, reading, reports, and discussion topics in an historical field are explored in depth. Where only general field is indicated, the specific field will be specified in the schedule of classes when the course is offered.

610 Studies in Michigan History 3 hrs.
628 The History and Culture of the Old Northwest 3 hrs.
637 Studies in United States History 3 hrs.
652 Medieval Studies 3 hrs.
654 Studies in the Renaissance and Reformation 3 hrs.
658 The Enlightenment 3 hrs.
662 Studies in Russo-Soviet History 3 hrs.
667 Studies in Recent European History 3 hrs.
685 Studies in Far East History 3 hrs.
688 African History Studies 3 hrs.

B. SEMINARS

Courses which focus on research and the preparation of papers. The specific field of each seminar, when offered, will be indicated in the schedule of classes.

626 Seminar in Early American History 3 hrs.
636 Seminar in Recent American History 3 hrs.
646 Seminar in Ancient and Medieval History 3 hrs.
656 Seminar in Early Modern European History 3 hrs.
666 Seminar in Recent European History 3 hrs.
676 Seminar in Russo-Soviet History 3 hrs.
686 Seminar in Far East History 3 hrs.
696 Seminar in African History 3 hrs.
C. PROFESSIONAL COURSES

690 Historical Method

3 hrs.

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

692 Studies in Historical Literature

3 hrs.

Designed to acquaint the student with the major historical works in his designated field of special interest. Required of all candidates for the Master’s or Specialist degree in History. Students enrolling should consult the Graduate Adviser.

699 Historical Essay

4 hrs.

An analytical and interpretive study to be written under the supervision of a member of the History faculty and selected in consultation with the graduate adviser.

International and Area Studies

Mortimore, Director

The Institute of International and Area Studies (IIAS) was established by the Trustees and Administration of Western Michigan University to design, coordinate and administer interdisciplinary programs devoted to the study of cultures located geographically outside the continental United States. Pursuant to this mandate, the Institute, in subsequent years, has (1) facilitated the formation of African, Asian, Comparative/Cross-Cultural, Latin American and Slavic Studies programs at the University, (2) encouraged by various means curricular and staff development in the fields, of both comparative/cross-cultural and area studies, (3) coordinated, with the active support of participating departments, undergraduate and graduate-level programs in area and comparative/cross-cultural studies, (4) cooperated with governmental agencies in student exchange and visiting leader programs, and (5) conducted conferences, seminars, symposia and lecture series which had as their focus comparative and area concerns.

The Institute offers two graduate-level programs, the Master of Arts in International and Area Studies and the Specialist in Arts in International and Area Studies. Master’s degrees may be taken with major emphasis upon either (1) African Studies, (2) Asian Studies, or (3) Comparative/Cross-Cultural Studies, while Specialist programs are offered with special emphasis upon either (1) African Studies, (2) Asian Studies, or (3) Comparative/Cross Cultural studies.

The faculty members involved in International and Area Studies are listed below with their disciplines:

African Studies Program

Robert Hannah (History), Head; Edward T. Callan (English), Ronald W. Davis (History), David Ede (Religion), Dennis Floyd (Black Americana Studies), William Garland (Anthropology), Bruce Haight (General Studies), Jeanette Irvin (Black American Studies).
International and Area Studies

Dorotha Kercher (Waldo Library), Leonard Kercher (Sociology), Eugene C. Kirchherr (Geography), Jerome H. Long (Religion), Peter Malanchuk (Waldo Library), Edwin Meader (Geography), 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 Howard E. Wolpe (Political Science)

African Studies Core Courses

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td><strong>Anthropology</strong></td>
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<tr>
<td>525 Modern African Cultures</td>
<td>3 hrs.</td>
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<tr>
<td>545 Topics in Ethnology: Africa</td>
<td>3 hrs.</td>
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<tr>
<td><strong>Arts and Sciences</strong></td>
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<tr>
<td>500 Black Humanism</td>
<td>4 hrs.</td>
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<tr>
<td>504 Foreign Studies Seminar: Africa</td>
<td>1-6 hrs.</td>
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<tr>
<td><strong>Economics</strong></td>
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<tr>
<td>585 Economics of Sub-Saharan Africa</td>
<td>3 hrs.</td>
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<tr>
<td><strong>Geography</strong></td>
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<td>516 Middle East and North Africa</td>
<td>3 hrs.</td>
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<tr>
<td>517 Middle and South Africa</td>
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<tr>
<td>609 Studies in Regional Geography: Africa</td>
<td>3 hrs.</td>
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<tr>
<td>610 Seminar in Regional Geography: Africa</td>
<td>3 hrs.</td>
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<tr>
<td><strong>History</strong></td>
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<td>587 Ancient and Medieval Africa</td>
<td>3 hrs.</td>
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<td>588 Modern Africa</td>
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<td>688 Studies in African History</td>
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<td>696 Seminar in African History</td>
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<tr>
<td><strong>Linguistics</strong></td>
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<td>505 Basic Critical Languages</td>
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<td>506 Intermediate Critical Languages</td>
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<td>507 Advanced Critical Languages</td>
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<td>508 Reading Critical Languages</td>
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<tr>
<td>509 Writing Critical Languages</td>
<td>4 hrs.</td>
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<tr>
<td><strong>Political Science</strong></td>
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<tr>
<td>549 Problems of Foreign Political Systems: Africa</td>
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<tr>
<td>640 Seminar: Foreign Political Systems (Africa)</td>
<td>3 hrs.</td>
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<tr>
<td>644 Political Modernization: Africa</td>
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<tr>
<td><strong>Religion</strong></td>
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<tr>
<td>500 Historical Studies: Islam in the Modern World</td>
<td>2-4 hrs.</td>
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<tr>
<td><strong>Social Science</strong></td>
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<tr>
<td>605 Seminar in Area Studies: Africa</td>
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Sociology
557 Changing Social Systems: Sub-Saharan Africa 3 hrs.
559 Ethnic Relations: Africa 3 hrs.
571 Social Change: Africa 3 hrs.
577 Comparative Institutional Studies: Africa 3 hrs.

Asian Studies Program
Andrew C. Nahm (History), Head; Lilia Chen (Linguistics), Chen-kuan Chuang (History), David G. Dickason (Geography), D.P.S. Dwarikesh (Linguistics), Byron H. Earhart (Religion), David Ede (Religion), Ross J. Eshleman (Sociology), Nancy E. Falk (Religion), Alfred K. Ho (Economics), Charles O. Houston (Social Science), Chester L. Hunt (Sociology), C. I. Eugene Kim (Political Science), David Lewis (Sociology), Reinhold Loffler (Anthropology), Robert F. Maher (Anthropology), Fredric J. Mortimore (IILAS), William R. Rosegrant (English), Martin H. Ross (Sociology), Robert L. Shafer (English), Visho B. L. Sharma (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.
603 Studies in Physical Anthropology: Asia 4 hrs.

Economics
587 Studies in Asian Economics 3 hrs.
588 Economic Development: Asia 3 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 3 hrs.
555 Studies in Major Writers (Asian) 4 hrs.

Geography
515 Monsoon Asia 4 hrs.
519 East Asia 3 hrs.
520 South Asia 3 hrs.
550 Studies in Historical Geography: Asia 3 hrs.
609 Studies in Regional Geography: Asia 3 hrs.
610 Seminar in Regional Geography: Asia 2-3 hrs.

History
580 Traditional China 3 hrs.
581 Modern China 3 hrs.
582 Japan’s Transition from Feudal State to Modern Nation 3 hrs.
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<tr>
<th>Course Code</th>
<th>Course Description</th>
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<td>583</td>
<td>Modern Japan</td>
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<td>584</td>
<td>Modern Korea</td>
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<td>585</td>
<td>Southeast Asia in the Twentieth Century</td>
<td>3 hrs.</td>
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<td>685</td>
<td>Studies in Far East History</td>
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<td>686</td>
<td>Seminar in Far East History</td>
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<td>506</td>
<td>Intermediate Critical Languages:</td>
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<td>Chinese</td>
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<td>Hindi-Urdu</td>
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<td>Japanese</td>
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<td>Korean</td>
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<tr>
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<td>Advanced Critical Languages</td>
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<td>Reading Critical Languages</td>
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<td>Writing Critical Languages</td>
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<tr>
<td>575</td>
<td>Studies in Languages of the world: Asian Languages</td>
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<td>543</td>
<td>Politics and Institutions of South Asia</td>
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<td>544</td>
<td>The Military and Political Systems</td>
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<td>545</td>
<td>Theories of Political Development</td>
<td>3 hrs.</td>
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<td>547</td>
<td>Political Modernization of Japan and Korea</td>
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<td>548</td>
<td>Asian Communism</td>
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<td>644</td>
<td>Seminar: Political Modernization (Asia)</td>
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<td>500</td>
<td>Historical Studies in Religion: Buddhism</td>
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<td>500</td>
<td>Historical Studies in Religion: Hinduism</td>
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<td>500</td>
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<td>500</td>
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<td>Movements in Japan</td>
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<td>500</td>
<td>Historical Studies in Religion: New Religious Movementsand Revitalization</td>
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<td>621</td>
<td>Seminar in Non-Western Religions: Asian Religions</td>
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<td>605</td>
<td>Seminar in Area Studies: Asia</td>
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<td>559</td>
<td>Studies in Ethnic Relations: Asia</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>571</td>
<td>Social Change: Asia</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>577</td>
<td>Comparative Institutional Studies: Asia</td>
<td>3 hrs.</td>
</tr>
</tbody>
</table>
Comparative/Cross-Cultural Studies

Program

Fredric J. Mortimore (IIAS), Advisor; Kenneth A. Dahlberg (Political Science), D. P. S. Dwarikesh (Linguistics), H. Byron Earhart (Religion), Rainer R. Erhart (Geography), William Garland (Anthropology), Charles F. Heller (Geography), Charles O. Houston (Social Science), Chester L. Hunt (Sociology), Alan Isaak (Political Science), Louis J. Junker (Economics), Eugene C. Kirchherr (Geography), Robert F. Maher (Anthropology), Jerome G. Manis (Sociology), Cora B. Marrett (Sociology), Claude S. Phillips, Jr. (Political Science), Eldor C. Quandt (Geography), Henry A. Raup (Geography), William A. Ritchie (Political Science), Robert Jack Smith (Anthropology), and Lawrence Ziring (Political Science)

Comparative/Cross-Cultural Studies Core Courses

Anthropology

534 Peasant Societies in Cross-Cultural Perspective 3 hrs.
536 Cultural Evolution 3 hrs.
537 Political Anthropology 3 hrs.
538 Legal Anthropology 3 hrs.
540 Cultural Ecology 3 hrs.
575 Studies in Languages of the World 3 hrs.

Economics

508 Institutional Economics 4 hrs.
539 Economic Anthropology 3 hrs.
588 Economic Development 4 hrs.
688 Issues in Economic Development 3 hrs.

Geography

540 Political Geography 3 hrs.
541 Geographic Foundations of National Power 3 hrs.
543 Cultural Geography 3 hrs.
544 Agricultural Geography 3 hrs.
545 Manufacturing Geography 3 hrs.
546 Transportation Geography 3 hrs.
550 Studies in Historical Geography 3 hrs.
570 Urban Geography 4 hrs.
640 Seminar in Political and Military Geography 2-3 hrs.
642 Seminar in Historical and Cultural Geography 2-3 hrs.
644 Seminar in Economic Geography 2-3 hrs.
645 Geographical Factors in the Development of Non-Western Societies 3 hrs.
646 Analysis of Primary Resource Utilization in Developing Nations 3 hrs.
647 Developing Societies in the World Geopolitical Scheme 3 hrs.
670 Seminar in Urban Geography 2-3 hrs.

Linguistics

560 Comparative Linguistics 4 hrs.
575 Studies in Languages of the World 4 hrs.
Modern and Classical Languages
Cole, Chairman; Professors Coutant, Mantero, Noble, Osmun; Associate Professors Ebling, Giedeman, Jones; Assistant Professors Alvarez, Cardenas, Felkel, Gardiner, Griffin, Hammack, Jasso, Kissel, Krawutschke, McGranahan, Orr, Wilhite

LANGUAGE TEACHING COURSES

Open to Graduates and Upperclassmen

Language 558 (French, German, Spanish, or other language)
Modern Language Instruction 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 Graduates Only

Language 610 (French, German, Spanish)
Applied Linguistics in the Teaching of Foreign Languages 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: Language 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
Open to Graduates and Upperclassmen

French 544 Seminar in France 4 hrs.

A summer study of French language, literature, and culture concentrated at Grenoble and Paris. Designed especially for teachers and advanced college students of French, the course consists of four weeks of formal classes at the University of Grenoble with regularly scheduled lectures and discussions in the French language on questions relating to French history, institutions, social problems, linguistics, and teaching methods. The session at Grenoble is supplemented by twelve days of
organized inspection of cultural monuments in Paris with full explanations by an instructor for all points visited. Each student submits a term paper investigating one phase of his studies of particular interest to him. Graduate or undergraduate credit.

**French 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.

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

**French 552 Advanced French Conversation** 3 hrs.
Intensive practice with spoken French. Prerequisite: Six hours of French 316-317 or equivalent.

**French 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 French 322, 328, 329, 550. Representative topics which may be treated in this area include:

- Medieval Literature. Outstanding works from various genres of the medieval period.
- Renaissance Literature. Outstanding works from the period, to include Montaigne, Rabelais and the Pléiade.
- Seventeenth Century Literature – Preclassic period: Reforms of Malherbe, préciosité, Descartes, beginnings of classical drama, and Corneille. Also, classic period: significant works from the beginning of the reign of Louis XIV to his death.
- Eighteenth Century Literature – Analysis of outstanding works of the period.
- Nineteenth Century Literature. Studies in realism and naturalism.

**Open to Graduates Only**

**French 600 French Classical Drama** 3 hrs.
*Drama classique*. Seventeenth century French tragedy and the comedies of Molière.

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

**French 602 Contemporary French Novel** 3 hrs.
*Roman Contemporain*. Representative novels of the twentieth century.
French 603 French Literary Criticism 3 hrs.
Study of French literary criticism as a literary genre and as a basis of judgment.

French 604 Modern French Poetry 3 hrs.
Evaluations of French poetry from the end of the Romantic period to the present. Special emphasis will be given to major trends and leading personalities in various schools.

French 620 Seminar 2-4 hrs.
Theme, genre or author selected from a particular period, or a topic from a linguistic area.

GERMAN

Open to Graduates and Upperclassmen

German 510 German Life and Culture 3 hrs.
Investigates cultural aspects necessary for an understanding of Germany. Historic, geographic, social and religious factors are treated. Prerequisites: German 316, 317, 326, and 327 or equivalent.

German 528 Survey of German Literature 3 hrs.
A comprehensive study of German literature from its beginning through Romanticism. Prerequisites: German 316, 317, 326, and 327 or equivalent.

German 529 Survey of German Literature 3 hrs.
A comprehensive study of German literature from German Realism to the present. Prerequisite: German 316, 317, 326, and 327 or equivalent.

German 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 German 528, 529 and 560.

German 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: German 316 and 317 or equivalent.

German 553 Advanced German Conversation 3 hrs.
Intensive training in conversational German with emphasis on colloquial language and idiom. Prerequisites: German 316 and 317 or equivalent.

German 559 History of the German Language 3 hrs.
Survey of the department. Prerequisite: Six hours of 300 level German or above.

German 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 Graduates Only

German 606 Geethe 3 hrs.
Das Werk Geotbes. The literary and cultural contributions of Geethe, ex-
cluding Faust.

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

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

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

LATIN

Open to Upperclassmen and Graduate Students and
Others by Permission of the Instructor

Latin 550 Independent Study in Latin 1-3 hrs.
Directed, individual study of a specific topic in Latin literary or linguistic area.
Departmental approval required for admission.

Latin 552 Latin Writing 3 hrs.
Practice in the fundamentals of correct expression. Required for Latin majors.
Prerequisite: Latin 326 or 327 or equivalent.

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

Latin 560 Studies in Latin Literature 3 hrs.
Topic varies according to genre, author, or period and will be announced. Each
of these courses carries separate credit, although all are listed under 560. Thus, a
Languages

Student may take any or all of the offerings at various times. Prerequisite: Latin 326 or 327 or equivalent. Representative topics which may be treated in this area include:

Satire - Rome as pictured in the conversations of Horace and the invectives of Juvenal. Readings on the origins and development of satire as a genre.

History - Reading and appraisal of Livy and of Tacitus as historians and literary artists.

Bucolic Poetry - Readings from Vergil's *Eclogues and Georgics* plus selections from later writers of bucolic poetry and discussion of its development as a literary form.

Lyric and Elegiac - Broad readings in Roman poetry, centering around Catullus, Ovid, Martial and the other poets of love. Discussion of the origin and influence of elegy as a poetic form.

Medieval Latin - A study of the period 500-1500 A.D. when Classical Latin was blending into the new vernaculars to form eventual Romance Languages. Prose and poetic readings include a variety of themes reflecting the intellectual, cultural, and religious thinking of the times.

**Latin 568 Mythology**

3 hrs.

Investigates the origins, elements, and interpretations of the principal myths and legends of Greece and Rome and their preservation not only in literature, but also in painting, music, and sculpture. No prerequisite.

**Latin 575 Classical Drama in Translation**

3 hrs.

Readings and analysis of selected plays of Aeschylus, Sophocles, Euripides and Aristophanes as dramas and expressions of the Greek view of life. Some attention to Roman drama.

**Latin 601 Roman Novel**

3 hrs.

A study of the history and development of the Greek romance and the Roman novel. Extended readings of Petronius's *Satyricon* and Apuleius's *Metamorphoses* in Latin.

**Latin 602 Comparative Classical Grammar**

3 hrs.

Evolution, history and mutual relations of the Indo-European group of languages, especially Greek, Latin, and Sanskrit and their systems of phonology, inflection, syntax, and semantics.

**Latin 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.

**Latin 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.

**Latin 628 Seminar**

3 hrs.

Topic to be selected from a Latin linguistic or literary area.
RUSSIAN

Open to Graduates and Upperclassmen

Russian 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.

Russian 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: Russian 316, 317 and 328.

Russian 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: Russian 316, 317, 328, 375. Topics treated in this area include but are not restricted to:

- The Poetry of Pushkin: Emphasis on the tales and Byronic narratives.
- Classic Russian Short Stories: Emphasis on the works of Turgenev, Gogol, Tolstoy, and Leskov.
- Modern Russian Short Story: Emphasis on Bunin, Paustovsky, Solzhenitsyn and Fedin.

SPANISH

Open to Graduates and Upperclassmen

Spanish 550 Independent Study in Spanish 1-3 hrs.
Directed, individual study of a specific topic in a Spanish literary or linguistic area. Departmental approval required for admission.

552 Advanced Spanish Grammar and Composition 3 hrs.
An advanced review of the intricacies and problems of Spanish Grammar and a study of syntax, stylistics, and methods of expressing oneself in original Spanish. This course is designed to be taught in Spanish. Prerequisite: Spanish 328 or 329 or equivalent.

Spanish 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: Spanish 328 or 329 or equivalent. Representative topics which may be treated in this area include:
Linguistics

Cervantes—Don Quixote and other works of Cervantes together with his life and thought.

Seventeenth Century Theater—Main works of Lope de Vega through Calderón de la Barca.

Nineteenth Century—The Romantic Movement.

Nineteenth Century Novel—Development of the regional novel from Fernán Caballero through Blasco Ibáñez.

Generation of '98—Thought and works of typical representatives such as Unamuno, Ortega y Gasset, and Azorín.

Contemporary Theater—Evolution and analysis of the characteristics.

Spanish-American Short Story—Significant short stories along with the cultural and social background.

Contemporary Spanish-American Novel—The twentieth century novel along with the cultural and social background.

Open to Graduates Only

Spanish 600 Golden Age Prose 3 hrs.
Study and Comparison of the major prose types of the period with special attention to the picaresque novel.

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

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

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

Spanish 608 Nineteenth and Twentieth Century Spanish Poetry 3 hrs.
Study of trends from Romanticism to present times and analysis of works of the major poets.

Spanish 620 Seminar 2-4 hrs.
Topic to be selected from a Hispanic literary or linguistic area.

Linguistics

Palmatier, Chairman; Associate Professor Hendriksen; Assistant Professor Dwarikesh;
Instructors Chen, Crandall, Homsi, Lelis, Muiznieks, Muthiani, Vanov, Whitmore

GENERAL LINGUISTICS COURSES

Open to Graduates and Upperclassmen

500 Introduction to Linguistics 4 hrs.
An introduction to the principles and practices in the major schools (e.g.
structural, transformational), fields (e.g. historical, comparative), and applications (e.g. dialectology, lexicography) of modern linguistic study.

505, 506, 507, 508, 509 (see Critical Languages courses below)

510 (400) Teaching English as a Foreign 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.

550 Studies in Linguistics and Related Disciplines

An examination of the interrelationships between linguistics and another related discipline e.g. between linguistics and psychology (psycholinguistics) or between linguistics and sociology (sociolinguistics). May be repeated for credit.

560 Comparative Linguistics

An introduction to the branch of linguistics which deals with the similarities and differences between related languages and the methodology through which the linguist is able to make statements about their correspondences and divergences.

570 Studies in Linguistic Structures

A detailed examination of the phonological, morphological, and syntactic structure of a given language. Various models for describing the structure of the language will be considered. May be repeated for credit.

575 (548) Studies in Languages of the World

Intensive study of a group of languages (varying from semester to semester) that are either genetically related (e.g. Slavic languages), typologically similar (e.g. "tone" languages), or geographically proximate (e.g. African languages). May be repeated for credit.

580 Linguistic Field Techniques

Interview techniques for the elicitation of oral language data, and methods of analysis of the data into significant linguistic units for their eventual arrangement in the form of a grammar and dictionary. Prerequisite: Consent of instructor.

598 Readings in Linguistics

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 Linguistics Department. Prerequisite: Permission of the instructor and Chairman.

CRITICAL LANGUAGES COURSES

(A "critical" language is one which is not described in the Undergraduate Catalog as a regular offering of the Department of Modern and Classical Languages.)
Open to Graduates and Upperclassmen

505 (500) Basic Critical Languages 4 hrs.
Independent learning, at the basic stage, of a spoken "critical" language by utilizing programmed laboratory resources under the supervision of a linguist. Prerequisite: Permission of instructor.

506 Intermediate Critical Languages 4 hrs.
Independent learning, at the intermediate stage, of a spoken "critical" language by utilizing programmed laboratory resources under the supervision of a linguist. Prerequisite: Ling. 505 and permission of instructor.

507 Advanced Critical Languages 4 hrs.
Independent learning, at the advanced stage, of a spoken "critical" language by utilizing programmed laboratory resources under the supervision of a linguist. Prerequisite: Ling. 506 and permission of instructor.

508 Reading Critical Languages 4 hrs.
Independent reading of "critical" language materials in the standard script by utilizing programmed materials under the supervision of a linguist. Prerequisite: Ling. 505 and permission of instructor.

509 Writing Critical Languages 4 hrs.
Independent writing of a "critical" language in the standard script by utilizing programmed materials under the supervision of a linguist. Prerequisite: Ling. 505 and permission of instructor.

Mathematics
Clarke, Chairman; Professors Alavi, Chartrand, Hannon, Leja, McCully, Petro, Powell, and Seber; Associate Professors Blefko, Buckley, Giesy, Gioia, Goldsmith, Hackney, Hsieh, Lick, Meagher, Northam, Riley, Schreiner, Sechler, Sievers, Stoddart, Stoline, Turner, and Yang; Assistant Professors Boyd, Eenigenburg, Kapoor, Laing, Nelson, White, and Wright.

Open to Graduates and Upperclassmen

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 222 (223 recommended).

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 223 and 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 333.

540 Introduction to Algebraic Geometry 3 hrs.
A study of the basic properties of projective space of n-dimensions utilizing both the algebraic and synthetic definitions, representation of projective geometry as the geometry of subspaces of a vector space, and the algebraic approach to affine geometry. Prerequisite: Math 332 (Math 333 recommended).

542 Differential Geometry 3 hrs.
Topics include: Directional derivatives, differential forms, curvature and torsion of curves, transformations and tensor calculus, geodesics and other curves on surfaces, conformal and isometric mappings, minimal surfaces. Prerequisite: Math 570 and 571.

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 332.

552 Teaching of Elementary Mathematics 2 hrs.
Consideration is given to curriculum problems and trends in elementary school mathematics and to specific problems of teaching mathematics effectively to elementary school children. Prerequisite: Math 150 or equivalent.

560 Probability 3 hrs.
A first course in mathematical probability intended for upper class students and first-year graduate students. This course considers probability spaces; mathematical expectation; moment-generating functions; special discrete and continuous distributions; independence; transformations of variables; sampling distributions; asymptotic theory. Prerequisite: Math 223 and 332.

561 Mathematical Statistics 3 hrs.
A continuation of Math 560. This course is a basic introduction to mathematical statistics. The emphasis is on theory and concepts, although some applications
are considered. Topics include: point estimation, maximum likelihood estimates; sufficiency and completeness; limiting distributions; order statistics; statistical hypothesis; likelihood ratio tests; correlation and regression. Prerequisite: Math 560.

562 Statistical Analysis I 4 hrs.
A first course in statistics for upper class students and first-year graduate students, with primary emphasis on applications. Topics include: elementary probability; combinatorial probability; binomial, Poisson and hypergeometric distributions with applications; normal, chi-square, F, and t distributions with applications to estimation, hypothesis testing, and confidence intervals; curve fitting; linear regression; non-parametric techniques. Followed by Mathematics 662. Prerequisite: Math 222 (Math 223 recommended).

570 Advanced Calculus 3 hrs.
Properties of real numbers, Cauchy sequences, series, limits, continuity, differentiation. Riemann integral, sequences and series of functions. Prerequisite: Math 223 and 332.

571 Analysis I 3 hrs.
Fundamental concepts of real analysis, functions of one variable, topology of $\mathbb{R}$, Riemann-Stieltjes integral. Prerequisite: Approval of adviser.

572 Analysis II 3 hrs.
Continuation of Math 571. Uniform convergence of sequences and series of functions, Fourier series, functions of several variables, Lebesgue measure, measurable functions, Lebesgue integration of the real line. Prerequisite: Math 571 or consent 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 223.

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. Prerequisite: Math 223.

580 Number Theory 3 hrs.
Diophantine equations, congruences, quadratic residues, and properties of number-theoretic functions. Prerequisite: Math 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 Graduates Only

602 Fourier Series and Boundary Value Problems 3 hrs.

Topics covered include Fourier Series and Fourier Integrals and a further study of boundary value problems with special functions beyond those covered in Math 574 and 575. Prerequisites: Math 574 and 570, or equivalent.

604 Operational Mathematics 3 hrs.

Topics covered include the study of the theory and application of Laplace Transform and other linear integral transformations. Prerequisites: Math 575 and 576, or equivalent.

605 Theory of Optimization 3 hrs.

Necessary conditions for various classical and control problems, sufficient conditions, approximation. Prerequisite: Math 572 and 574.

606 Data Structures 3 hrs.

Introduces and compares the alternatives for representing and manipulating data. Specific examples of data structures will be chosen from the areas of scientific programming, operating systems, stimulation, and compiling. Prerequisite: Math 506.

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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>623</td>
<td>Point Set Topology</td>
<td>3 hrs.</td>
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<td></td>
<td>Complete metric spaces; local connectedness; Hahn-Mazurkiewicz Theorem; continuum theory; fixed point theorems; dimension theory. Prerequisite: Math 520.</td>
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<tr>
<td>629</td>
<td>Studies in Topology</td>
<td>3 or 4 hrs.</td>
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<td></td>
<td>Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.</td>
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<tr>
<td>630</td>
<td>Abstract Algebra I</td>
<td>3 hrs.</td>
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<td>A general study of groups, rings, and modules. A specific study of finite groups, polynomial rings, and Euclidean domains. Prerequisite: Math 530.</td>
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<tr>
<td>631</td>
<td>Abstract Algebra II</td>
<td>3 hrs.</td>
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<td></td>
<td>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.</td>
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<tr>
<td>632</td>
<td>Field Theory</td>
<td>3 hrs.</td>
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<td>Algebraic and transcendental extensions of fields, Galois theory, and valued fields. Prerequisite: Math 630.</td>
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<tr>
<td>636</td>
<td>Homological Algebra I</td>
<td>3 hrs.</td>
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<td></td>
<td>This course and Math 637 constitute a two semester study of homological algebra. Topics discussed include modules, homology of complexes, extensions and resolutions, categories and functors, adjoint functors, derived functors, and special sequences. Prerequisite: Math 631.</td>
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<tr>
<td>637</td>
<td>Homological Algebra II</td>
<td>3 hrs.</td>
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<td></td>
<td>A continuation of Math 636. Prerequisite: Math 636.</td>
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<tr>
<td>639</td>
<td>Studies in Algebra</td>
<td>3 hrs.</td>
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<td></td>
<td>Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.</td>
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<tr>
<td>640</td>
<td>Graph Theory I</td>
<td>3 hrs.</td>
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<td></td>
<td>Fundamental concepts; eulerian graphs; adjacency and incidence matrices; trees; the Reconstruction Problem. Prerequisite: Approval of advisor.</td>
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<tr>
<td>645</td>
<td>Studies in Graph Theory</td>
<td>Variable</td>
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<td></td>
<td>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.</td>
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<tr>
<td>649</td>
<td>Studies in Geometry</td>
<td>3 hrs.</td>
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<td></td>
<td>Advanced work organized around topics related to the field of study indicated in the above title. Students may take this course more than once.</td>
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<tr>
<td>656</td>
<td>Teaching of College Mathematics</td>
<td>2 hrs.</td>
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<td></td>
<td>In this course consideration is given to curriculum problems and trends in</td>
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</table>
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.

**660 Statistical Decision Theory** 3 hrs.

Mathematical statistics is considered in a decision theoretic framework. A study is made of: the decision problem; loss functions; risk functions; Bayes procedures; minimax procedures; least favorable distributions; admissibility; complete classes; sufficiency; hypothesis testing; invariance. Prerequisite: Math 561 or permission of instructor.

**661 Multivariant Statistical Analysis** 3 hrs.

A theoretical treatment of multivariant 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. Prerequisites: Math 561 and 510.

**662 Statistical Analysis II** 3 hrs.

A continuation of Math 562 with emphasis remaining on the applications. Consideration is given to more complex statistical problems. The topics include: multivariate normal distributions; non-central distribution; least squares; regression models (general linear, curvilinear, and non-linear); partial and multiple correlation; analysis of variance models; non-parametric models. Prerequisites: Math 562 or 561 and preferable some elementary matrix theory.

**663 Sampling Theory and Applied Statistics** 2-4 hrs.

An introduction to the statistical problems of sample surveys. Both theory and application are considered. Topics include: simple and stratified sampling; systematic sampling; cluster sampling; subsampling; application of statistical techniques to applied problem. Prerequisite: Math 561 and 662.

**664 Design of Experiments** 3 hrs.

A general survey of topics in experimental design. Topics include: contrasts; orthogonal components; Latin squares; incomplete block designs; factorial experiments; analysis of variance and covariance; applications. Prerequisite: Math 662 or 660.

**667 Introduction to Random Processes** 3 hrs.

This course is a treatment of random sequences and Markov processes. Discrete and continuous Markov processes; transition and rate matrices; Chapman-Kolmogorov equations; Kolmogorov systems; transient and limiting behavior; examples and illustrations; random walks, birth-and-death processes, etc.; stationary processes. Prerequisites: Math 530, 560, and 571.

**669 Studies in Probability and Statistics** 3 hrs.

The subject matter for this course is variable. Advanced work is considered and organized around topics not usually considered in the other courses.

**670 Measure and Integration** 3 hrs.

The basic theory of measure and integration, including such topics as Lebesgue
measure, abstract measures, measurable functions, product measures, $L^p$ spaces, Radon-Nikodym theorem. Prerequisite: Math 572.

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.

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.

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

Application of Logic and set theory to computing machine design; theories of computability and computation; propositional calculus; Boolean algebra in design of logical nets; proofs and decision procedures; computable functions; and application of graph theory to computer systems. Prerequisite: Math 506.

681 Introduction to Computability and Unsolvability 3 hrs.

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

687 Additive Number Theory 3 hrs.
Topics selected from: addition of sequences of integers, density relationships, sequences with no three terms in arithmetic progression, sequences and sets of multiples, partitions, Waring's problem, sieve methods.

688 Analytic Number Theory 3 hrs.

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.

The following courses are primarily for teachers and ordinarily will not apply towards the M.A. in Mathematics.

610 Concepts of Mathematics 4 hrs.
This course will include the following topics: sets, relations, functions, equivalence and other relations, axiomatics, logical structure of elementary algebra, mathematical induction, integers, rational and real numbers, cardinals. Prerequisite: Consent of adviser.

611 Mathematical Applications 4 hrs.
An introduction to the philosophy of, machinery for, and methodology in applications of mathematics. Includes topics in discrete probability, statistical sig-

*The approval of the instructor is required for each seminar.
Mathematics

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: Mathematics 610 or equivalent.

619 Numerical Methods 4 hrs.

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

650 Mathematics for Elementary School Teachers 2 hrs.

Emphasizes the concepts and foundations of the mathematics commonly taught in elementary school, and of associated problems of learning and teaching. Each student will be expected to study and report on some special problem or aspect of the teaching of arithmetic.

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

Sommerfeldt, Director

The Medieval Institute of Western Michigan University offers an interdisciplinary program leading to the Master of Arts in Medieval Studies. The
program provides preparation in medieval and Renaissance history, languages, literatures, philosophy, religion, and the arts. This flexible course of studies presents, in one year, opportunities for broad preparation in medieval studies as background for intensive work on the doctoral level.

Western Michigan University offers an academic environment appropriate for the study of the Middle Ages. The University is the host institution for the annual Conference on Medieval Studies and the Medieval Institute publishes a periodical, Studies in Medieval Culture.

The faculty members involved in the Medieval Institute are listed below with their disciplines:

George T. Beech (History), Guntram G. Bischoff (Religion), Joan Ann Boucher (Music), Ernst A. Breisach (History), Donald P. Bullock (Music), Samuel I. Clark (Honors College), Roger L. Cole (Modern and Classical Languages), Audrey Davidson (General Studies), Clifford Davidson (English), Robert S. Davis (English), Ronald W. Davis (History), George H. Demetrakopoulos (Medieval Institute), Ollin J. Drennan (General Studies), Elizabeth Dull (Art), D.P.S. Dwarikesh (Linguistics), David Ede (Religion), E. Rozanne Elder (History), Robert R. Fink (Music), Jack J. Frey (Music), Constantine J. Gianakaris (English), Elizabeth Giedeman (Modern and Classical Languages), Otto Gründler (Religion), Paule Hammack (Modern and Classical Languages), Susan Huston (History), Robert P. Johnston (Art), Louis Kiraldi (Library), Johannes A. Kissel (Modern Languages and Literatures), Paul L. Maier (History), Charles E. Meyer (Art), Ralph N. Miller (English), Donald Milton (Philosophy), Frances E. Noble (Modern and Classical Languages), Emanuel Nodel (History), George F. Osmun (Modern and Classical Languages), Robert A. Palmatier (Linguistics), Thomas Seiler (English), David A. Sheldon (Music), Rudolf J. Siebert (Religion), John R. Sommerfeldt (History), Larry E. Syndergaard (English)

Course Offerings

Art
525 Seminar in Art 2 hrs.
583 History of Medieval Art 3 hrs.
585 History of Renaissance Art 3 hrs.
620 Independent Study in Art History 2-3 hrs.

Arts and Sciences
504 Foreign Studies Seminar: Social Sciences 1-6 hrs.
505 Foreign Studies Seminar: Humanities 1-6 hrs.

Communication Arts and Sciences
526 History of Theatre: From the Beginnings to the English Renaissance 3 hrs.
598 Independent Studies in Speech 4 hrs.

Economics
598 Readings in Economics 1-3 hrs.

English
529 Medieval English Literature 4 hrs.
530 Medieval Continental Literature in English Translation 4 hrs.
Medieval Studies

531 Chaucer 4 hrs.
532 Sixteenth Century Literature 4 hrs.
543 Elizabethan and Jacobean Drama 4 hrs.
554 Milton 4 hrs.
555 Studies in Major Writers 4 hrs.
598 Readings in English 4 hrs.
642 Studies in Drama 3 hrs.
653 Studies in Shakespeare: Comedy 3 hrs.
660 Methods of Research in English 3 hrs.
661 Seminar in English 3 hrs.
676 Early English 3 hrs.

Graduate Studies
700 Thesis 6 hrs.
710 Independent Research 2-6 hrs.
712 Professional Field Experience 2-12 hrs.

History
506 Main Currents of Early Western Thought 3 hrs.
534 Medieval France 3 hrs.
535 Medieval England 3 hrs.
552 The Medieval Church 3 hrs.
553 Medieval Economy and Society 3 hrs.
554 The Renaissance 3 hrs.
555 The Reformation 3 hrs.
587 Ancient and Medieval Africa 3 hrs.
592 Historical Literature 2 hrs.
593 Philosophy of History 2 hrs.
598 Independent Readings in History 2-3 hrs.
652 Medieval Studies 3 hrs.
654 Studies in the Renaissance and Reformation 3 hrs.
646 Seminar in Ancient and Medieval History 3 hrs.
656 Seminar in Early Modern European History 3 hrs.
690 Historical Method 2 hrs.
692 Studies in Historical Literature 3 hrs.
699 Historical Essay 4 hrs.

Languages: Modern and Classical

French
544 Seminar in France 4 hrs.
550 Independent Study in French 1-3 hrs.
560 Studies in French Literature: Medieval and Renaissance 3 hrs.
620 Seminar 2-4 hrs.

German
510 The Central European Area 3 hrs.
528 Survey of German Literature 3 hrs.
550 Independent Study in German 1-3 hrs.
559 History of the German Language 3 hrs.
560 Studies in German Literature 3 hrs.
620 Seminar 2-4 hrs.
640 Introduction to Middle High German 3 hrs.
College of Arts and Sciences

Latin
550 Independent Study in Latin 1-3 hrs.
568 Mythology 3 hrs.

Russian
550 Independent Study in Russian 1-3 hrs.

Spanish
550 Independent Study in Spanish 1-3 hrs.
560 Studies in Spanish Literature 3 hrs.
606 Medieval Spanish Literature 3 hrs.
620 Seminar 2-4 hrs.

Librarianship
602 History of Books and Printing 3 hrs.

Linguistics
598 Readings in Linguistics 1-4 hrs.

Music
517 Collegium Musicum 1 hr.
570 Introduction to Musicology 3 hrs.
598 Readings in Music 2 hrs.
670 Seminar in Musicology 1 hr.
671 Seminar in Musicology 1 hr.
672 Medieval Music 3 hrs.
673 Renaissance Music 3 hrs.

Philosophy
501 Seminar in History of Philosophy 4 hrs.
598 Readings in Philosophy 1-4 hrs.

Religion
500 Historical Studies in Religion: Christian Theology to 1500 2-4 hrs.
500 Historical Studies in Religion: Reformation and Post-Reformation Theology 2-4 hrs.
598 Readings in Religion 1-4 hrs.

Science
598 Readings in Science 1-4 hrs.

Philosophy
Ellin, Chairman; Associate Professors Falk, Sheridan

Open to Graduates and Upperclassmen

501 Seminar in History of Philosophy 4 hrs.

Topic to be announced. The topic selected may be either the concentrated study of an individual philosopher, or an identifiable philosophical school, or the historical examination of a philosophical problem or concept. Prerequisite: Permission of the instructor.
Physics

510 Seminar in Theory of Value 4 hrs.
An analysis of the value concepts as employed in the general theory of value, or in the value disciplines, ethics, political philosophy, and aesthetics.

520 Seminar in Logic 4 hrs.
Selected topics in one or more of the following areas: foundations of logic and mathematics, meta-mathematics, set theory, modal and many-valued logics, inductive logic, formal semantics and linguistics, the history of logic. Prerequisite: two courses in logic (or their equivalent) and permission of the instructor.

530 Seminar in Theory of Knowledge 4 hrs.
Selected problems in the theory of knowledge. The course focuses on the roles of reason and perception in knowing, and examines the problem of the external world. Prerequisite: Permission of the instructor.

531 Seminar in Metaphysics 4 hrs.
A study of selected topics from among typical metaphysical questions such as the mind-body problem. The course includes the examination of concepts such as reality, existence, being, substance, space, time, causality.

598 Readings in Philosophy 1-4 hrs.
Research on some selected period or topic under supervision of a member of the Philosophy faculty. Approval of instructor involved and chairman of the Department’s individualized courses must be secured in advance of registration.

Physics

Dotson, Chairman; Professors Bernstein, Bradley, Derby, Kruglak, Nichols, Oppliger, Zietlow; Associate Professors Carley, Hardie, Kaul, Kusmiss, Miller, Shamu, Soga; Assistant Professors Hagengruber, Herman, Vashishta

Open to Graduates and Upperclassmen

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: Physics 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: Physics 212, 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: Physics 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: Physics 111 or 211 or consent of instructor.

560 Modern Physics I 4 hrs.
This course includes an introduction to quantum mechanics with selected applications, including one-dimensional potentials, the harmonic oscillator, one-electron atom, and the helium atom. A knowledge of elementary differential equations is assumed. Recommended for seniors. Prerequisites: Physics 212 and 520, or consent of instructor.

561 Modern Physics II 4 hrs.
Here the quantum theory covered in Physics 560 is applied to several areas of atomic and nuclear physics. Topics covered include atomic shell structure, atomic spectroscopy, x-rays, collision theory, general properties of nuclei, the nuclear two-body problem, nuclear reactions, and nuclear models. Prerequisite: Physics 560.

563 Introduction to Solid State Physics 3 hrs.
This course is designed to acquaint the student with the basic techniques for describing the structure and properties of solids. After an initial study of symmetry and crystal structure the following topics are treated: the cohesion of solids; x-ray and neutron diffractions; the elasticity of solids; lattice vibrations; the thermal and electrical properties of solids, with particular emphasis on metals. Prerequisites: Physics 560 or consent of instructor.

566 Advanced Laboratory 2-3 hrs.
The objectives of this course are to provide the student with experiences in the use of modern laboratory equipment and with a better understanding of several important physical phenomena. The student will select experiments from a list covering three areas: atomic, solid-state, and nuclear physics. A portion of the semester may be devoted to studying a problem in depth. The course consists of two or three three-hour laboratory periods each week. The course may be repeated for credit. Prerequisites: Physics 342 and either 560 or 360 (560 or 360 may be elected concurrently with 566).

572 Techniques in the Use of Radiation and Radioisotopes 2 hrs.
Increasing use of radioisotopes and radiation in research in biology, chemistry and physics make it necessary to provide formal training for graduate students and advanced undergraduates in the principles and practices of safe radioisotope use. The course is interdisciplinary in content and consists of one lecture and one laboratory per week. It does not count toward a physics major or minor. Prerequisites: one year of college chemistry and one year of college physics.
598 Selected Topics

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 Graduates Only

622 Quantum Mechanics I

This course is designed to provide a foundation of fundamental techniques of calculation for more advanced work in 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. Discussing the simple and representative systems of the simple harmonic oscillator and the one electron atom, the course will confine itself almost solely to the non-relativistic approximation.

623 Quantum Mechanics II

This course is a continuation of 622. It employs state-vector formulation to study several problems of general interest such as time-dependent perturbation theory, systems of identical particles, and introductory relativistic quantum mechanics. Prerequisite: Physics 622.

624 Statistical Mechanics

Statistical methods, employing ensemble theory, are used to study the equilibrium properties of systems having many degrees of freedom. Classical and quantum theories are developed and applied to selected problems of interest in physics and chemistry. The relationships between microscopic models and macroscopic properties are emphasized.

630 Classical Mechanics

Lagrange’s equations are developed early in the course and are used in the analysis of both point-mass and rigid-body problems. The modifications of classical mechanics required by the theory of relativity are reviewed. The Hamilton equations of motion and Hamilton-Jacobi theory are introduced, and some of the analogies between classical and quantum mechanics are discussed.

660 Nuclear Physics

This course emphasizes low-energy nuclear physics and covers the following areas: basic properties of nuclei, the two body problem, scattering, electromagnetic decay of nuclear levels, and nuclear models.

662 Electricity and Magnetism

This course deals with the static electromagnetic fields and its interaction with matter. The applications of boundary value problems are emphasized.

664 Solid State Physics

In this course the following topics are treated: superconductivity, the dielectric properties of solids, ferroelectricity, diamagnetism and paramagnetism, ferromagnetism and antiferromagnetism, magnetic resonance, optical phenomena in insulators, and point defects and dislocations in solids. Prerequisite: Physics 563.
NOTE: Most seminars and 500 level courses entitled "Problems..." or "Studies..." vary in topics each semester or session with repeated enrollments permitted. Schedule of classes will indicate credit for courses designating variable credit.

MAJOR AREAS

AMERICAN POLITICAL SYSTEM

504 Making of Public Policy in the U.S. 3 hrs.
A study of the formation of public policy at the local, state, and national levels with emphasis on the impact of decision processes upon policy outcomes.

506 Problems of American Government 3-4 hrs.
A critical examination of major problems facing national, state, or local government with emphasis upon contemporary efforts and studies designed to understand or solve such problems. Topics will vary from semester to semester and students may repeat the course.

520 Constitutional Law 3 hrs.
Study of leading American constitutional principles as they have evolved through major decisions of the U.S. Supreme Court. Emphasis on judicial review, federalism, separation of powers, commerce and taxation.

522 Civil Liberties and Civil Rights 3 hrs.
An examination of Supreme Court responses to First Amendment, criminal procedure, and equal protection questions with particular emphasis on political, social and policy-making aspects.

524 Judicial Behavior 3 hrs.
Role of the judiciary as policy maker. Study of judicial behavior and decision making processes utilizing modern research tools for analysis.

526 Administrative Law and Public Regulation 3 hrs.
A study of the requirements for, and the limits on, the exercise of administrative powers by public officials charged with regulating significant aspects of the social and economic life of the nation. Special attention is paid to the extent of governmental regulation and the means of safeguarding individual rights through fair administrative procedures and judicial control over administrative determination. Prerequisites: Political Science 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 under-
graduates and to serve as an introduction to the field for graduate students without previous training in public administration.

532 The Bureaucracy 3 hrs.
An analysis of the role of public bureaucracies in the decision process of government.

534 Administrative Theory 3 hrs.
A study of descriptive theories of organizational and administrative behavior relevant to government administrative agencies. Theories of complex formal organizations, decisional theories and systems theories will be analyzed.

Open to Graduates Only

600 Seminar: National Politics 3 hrs.
Research and study in selected topics in National politics. Topics will vary from semester to semester and students may repeat the course.

601 Seminar: State Politics 3 hrs.
Research and study of selected topics in state politics. Topics will vary from semester to semester and students may repeat the course.

602 Seminar: Urban Politics 3 hrs.
Examination of the literature on American urban politics and application of this literature to the development or refinement of some theories of community political behavior. The city will be used as a laboratory for the advancement of theoretical and empirical knowledge of politics.

620 Seminar: Public Law 3 hrs.
Study and research of major topics of interest in constitutional law, civil liberties or administrative law. Topics will vary from semester to semester and students may repeat the course.

622 Seminar: The Judiciary 3 hrs.
Study and research of major topics of interest in the judicial process, judicial behavior, decision making and judicial systems. Topics will vary from semester to semester and students may repeat the course.

630 Seminar: Public Administration 3 hrs.
Study and research of selected major topics in public administration. Independent reports will be made. Subject matter will vary and the course may be repeated.

FOREIGN AND COMPARATIVE POLITICAL SYSTEMS

540 Western Democratic Systems 3 hrs.
A comparative study of the established democracies of North America, Western Europe, and older Commonwealth states. Examines the conflict in western democracies between traditional ideology, structures, procedures and contemporary conditions. Analyzes comparatively and theoretically the constitutional and political party systems, political culture and behavior.
542 Administration in Developing Countries 3 hrs.
A consideration of the relation of administrative structure and technique to the political, economic and social problems of the developing countries. Special attention to the role of the bureaucracy in the political system and the nature of and obstacles to administrative modernization.

543 Politics and Institutions of South Asia 3 hrs.
Twentieth century experiments in Asian democracy are analyzed in India and Pakistan. Consideration is given to historical origins and contemporary problems. Particular emphasis is on the dynamics of the political process, the place and nature of ideologies, patterns of leadership, the quest and adaptability of political parties, the quantitative and qualitative aspects of articulate interests, the limits of political communication, methods of decision-making the implementation of rules and the available devices for conflict resolution.

544 The Military and Political Systems 3 hrs.
Old states as well as new ones are confronted with problems of a military nature which have an important bearing on the operation and development of their respective political systems. This course is designed to study the role of the military in advanced and less developed countries. Attempts will be made to identify the advantages and disadvantages, the strength and weaknesses of the military nexus. Organized as a pro-seminar.

545 Theories of Political Development 3 hrs.
Examines various theories of political development and analyzes their relevance to both underdeveloped and modernized states. Considers such problems as national integration, political socialization and communication. Organized as a pro-seminar.

547 Political Modernization of Japan and Korea 3 hrs.
Intensive analysis of the political system of Japan and Korea with developmental perspective. Their different political styles will be compared. Their different rates of development will be compared in terms of performance of the various political functions.

548 Asian Communism 3 hrs.
Compares several communist states and communist parties in noncommunist states of Asia in terms of their ideologies, revolutionary tactics, goals and achievements. 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 Graduates 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 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.

INTERNATIONAL RELATIONS

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 Graduates Only

650 Seminar: International Relations

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

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

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.

POLITICAL THEORY AND METHODOLOGY

560 Comparative Political Ideology

A consideration of the concept of ideology and significant classical and contemporary ideologies, including their nature, causes and functions in various political systems.

561 Contemporary Political Theory

An examination of contemporary theories of politics. An attempt will be made to delineate the most important recent developments in the construction of theories of political systems.

562 Modern Democratic Theory

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

Examines significant classical and contemporary theories of revolution with reference to both their analytical and normative implications.

564 Political Inquiry and Analysis

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

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. The course is primarily designed for graduate students in political science, but it will open to undergraduates planning to pursue
graduate studies. Undergraduates should obtain the permission of the instructor to enter the course.

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.

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.

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.

Psychology

Gault, Chairman; Distinguished University Professor Travers; Research Professor Ulrich; Professors Asher, Fatzinger, Fuller, Keller, N. Kent, Koranakos, Michael, Mountjoy, Robertson, Schmidt; Associate Professors Farris, Hutchinson, Lyon, Malott, Nangle, Snapper; Assistant Professors Hawkins, Hitzing, Huitema, L. Kent, Peine, Sidney

Open to Graduates and Upperclassmen

505 Teaching Psychology in the Secondary School 3 hrs.

Class discussions, laboratory experiences and field work concerned with the teaching of Psychology in high school. This is a required methods course for students who plan to teach Psychology in the secondary school. Prerequisite: Psychology 360.

510 Advanced General Psychology 3 hrs.

Readings, lecture, and discussion designed to introduce non-majors in psychology to modern behavior theory. Emphasis will be upon human behavior, both normal and abnormal, with a significant portion of the course devoted to the higher cognitive processes. Recommended as a cognate course in Psychology. Recommended prerequisite: one prior course in psychology.

512 Physiological Psychology 3 hrs.

A survey of the interrelationships of physiological and behavioral processes. Lecture and Lab. Prerequisite: Permission of instructor.
513 Animal Behavior I
3 hrs.
An examination of the topic of animal behavior and the analysis of various behavior categories. Emphasis will be placed on non-learning processes with comparisons of ethological and psychological methodologies.

514 Animal Behavior II
3 hrs.
An in-depth study of research in animal behavior. Emphasis will be on data collection and analysis. An individual research project will be required. Both laboratory and field research will be discussed.

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

517 Psychology of Learning for Teachers
3 hrs.
Designed to teach the principles of behavior and the application of these principles to teaching. Topic areas covered include the use of behavior principles in the construction of objectives, selection and preparation of instructional material, programmed instruction, incentive learning and behavior problems. Practical application is stressed.

518 Sensory and Perceptual Processes
3 hrs.
A survey of sensory and perceptual phenomena with an emphasis on vision and audition. Lecture and laboratory. Prerequisite: Permission of the instructor.

530 Statistics for Education
3 hrs.
An introduction to basic statistical procedures and concepts. Primarily for students in education. Not open to Psychology majors.

535 Instrumentation in Psychology
3 hrs.
A survey of problems in response measurement in experimentation lecture and laboratory.

540 Industrial Psychology
3 hrs.
Application of psychological principles to industry. An examination of employee selection, occupational analysis and classification, training, evaluation or performance, supervision, and working conditions. Prerequisites: Psychology 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.
581 Personnel Selection and Placement
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.

595 History of Psychology
The historical and philosophical foundations of contemporary American psychology.

597 Topical Seminar
A survey in depth and discussion of a research topic of current interest. Prerequisite: Permission of instructor. May be repeated for credit.

598 Special Projects in Psychology
Open to Graduates Only

613 Comparative Psychology
Phylogenetic and ontogenetic comparisons of behavior with relation to structure and function. Lecture and laboratory.

614 Motivation and Emotion
An introduction to the experimental analysis of psychological and physiological aspects of motives, incentives, and emotions. Prerequisite: Permission of the instructor.

617 Experimental Psychology of Learning
An intensive study of selected topics with special emphasis upon the techniques employed in the experimental analysis of behavior in the human and infrahuman organisms. Lecture and laboratory.

618 Experimental Psychology of Perception
An examination of the current facts and theories of sensation and perception. Lecture and laboratory.

623 Advanced Abnormal Psychology
Comprehensive study of pathological behavior patterns with consideration of experimental studies and theoretical approaches to causes and treatment.

624 Personality Theory
Consideration and evaluation of the major theories of personality with emphasis on those theories having implications for counseling and therapy. An examination of experimental evidence and illustrative case studies.

634 Advanced Statistics
Small sample theory and analysis of variance as applied to principles of experimental design.

635 Correlation and Regression Analysis
An advanced course covering simple and complex correlation and regression,
analysis of covariance and experimental time series techniques. Prerequisite: Psychology 634 or equivalent.

644 Personnel Training and Development 3 hrs.
The course emphasizes the principles of learning as well as techniques and administrative procedures used in the development of manpower at all levels.

645 Psychology of Work 3 hrs.
Emphasis is placed upon an investigation of worker attitudes, morale, motivation, supervisory styles, and social interaction as determiners of employees productivity and job satisfaction.

660 Introduction to Clinical and Community Psychology 3 hrs.
A survey of the fields of Clinical and Community Psychology with emphasis upon the new roles of Clinical Psychologists and Community Psychologists.

661 Behavior Change 3 hrs.
An examination of the theories and techniques of behavior change applied on an individual basis.

662 Behavior Change 3 hrs.
An examination of the philosophy theories and techniques of behavior change applied on a group basis.

663 Practicum in Behavior Change 2 hrs.
Supervised experience in one or more methods of behavior change. May be repeated for credit up to a maximum of 6 hrs.

680 Psychometric Theory 3 hrs.
An advanced course for research oriented behavioral science students. The main emphasis will be on the principles underlying development and use of all psychological measurement methods. Prerequisite: Permission of the instructor.

681 Personality Measures (Non-projective) 2 hrs.
Studies of the principles of objective personality measurement, such as the MMPI; the findings of studies using these procedures and their applications. Prerequisites: Graduate standing in Industrial, Clinical, School Psychology or Counseling, or permission of instructor.

682 Individual Testing 2 hrs.
Theory and basic concepts underlying the use of individual tests of intelligence. Experience under supervision in administration, scoring and interpretation of the Wechsler Adult Intelligence Scale (WAIS) and the Wechsler Intelligence Scale for Children (WISC), and other diagnostic instruments used in the prescriptive diagnosis of learning disabilities and other handicaps. Prerequisite: Graduate standing in Clinical or School Psychology, or permission of the instructor.

683 Individual Testing 2 hrs.
Theory and basic concepts underlying the use of individual tests of intelligence. Experience under supervision in administration, scoring and inter-
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.

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 Psychological Examiner only.

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. Psychology 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

This course will be an examination in depth of a research or professional topic of current interest.

Religion

Lawson, Head; Professors Grundler, Loew, Siebert; Associate Professor Bischoff, Earhart, Falk

Open to Graduates and Upperclassmen

500 Historical Studies in Religion

The topic to be announced in the time schedule. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be discussed: Primitive Religions, Early and Medieval Christianity, Buddhism, Hinduism, The Protestant Reformation, The Post Reformation Period, Romantic Spirituality, 19th Century Enlightenment Rationalism and Liberalism, 20th Century Neo-Orthodoxy, the Evolution of Modern Catholicism, the Shaping of Religion in America.

510 Morphological and Phenomenological Studies in Religion

The topic to be announced in the time schedule. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Divine Forms in West African Religions, Christian Rites and Symbols.

520 Methodological Studies in Religion

Topics to be announced in the time schedule. The content of the course will
vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Hermeneutics and Exegesis, Philosophical and Cultural Approaches to Religion, Psychological and Sociological Theological Method.

521 The Teaching of Religion in the Public School 2 hrs.

This course focuses on methods and issues involved in the teaching of religion in the public school. Particular attention is given to the problems of its constitutionality, the distinction between the academic study of religion and religious instruction, and the question of meaning. Various approaches to the teaching of religion are critically evaluated. Teaching methods appropriate to the level of instruction, availability, organization, selection and use of materials will be discussed. Required of all students following an Elementary or Secondary Education Curriculum which includes the academic study of religions as a minor.

530 Constructive Studies in Religion 2-4 hrs.

Topic to be announced in the time schedule. The content of the course will vary from semester to semester. Students may repeat the course for credit as long as the subject matter is different. Topics such as the following will be studied: Constructive Approaches to Christian Ethics, the Possibility of a Post-Christian Theology, Contemporary Religious Issues and Problems, Dialogue Between the Religions of the World, Religion and Science.

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's individualized courses must be secured in advance of registration.

Open to Graduates Only

621 Seminar in Non-Western Religions 4 hrs.

A study of one of the Non-Western religions, or of some aspect or problem of one of these religions.

Science Division

Professors Holkeboer, G. Mallinson; Assistant Professors J. Mallinson, Poel

Open to Graduates and Upperclassmen

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: Physics 106, or Physics 110 and Physics 111 or equivalent; Astronomy 104 or equivalent.

538 Oceanography 2 hrs.

Physical oceanography and submarine geology. A study of the physical proper-
ties 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. Open to NSF students only.

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 Graduates Only

610 Science for Elementary Teachers 2 hrs.
Indicates the part played by science experiences in the development of children, acquaints teachers with types of science content and teaching procedures suitable in elementary education.

620 The Teaching of Science 2 hrs.
Analyzes and evaluates the objectives of science as a high school subject and considers modern practices with respect to such topics as classroom method, motivation, laboratory work, directed study and like problems.

621 Science Seminar 2 hrs.
The selection and integration of suitable topics from the physical and earth sciences into a coherent program of junior-high-school science. Some lectures will be given on meteorology and astronomy and the development of a cohesive laboratory program will be emphasized.

625 Environmental Science Seminar 3 hrs.
Analysis of case studies of environmental problems. Covers the scientific, social, and political problems involved in environmental action. May be repeated for credit.

690 Science Education Seminar 4 hrs.
Designed to provide an integrating experience for students studying in the Science Education doctoral program. The subject of the seminar will vary from one semester to the next. May be repeated for credit.

NSF Courses – Open to Institute Participants Only

630 Studies in Physical Science (NSF) 2-4 hrs.
Designed for In-Service Programs for Teachers of Science at the elementary level or junior-high-school level. Contents selected mainly for concepts of physics and chemistry needed to teach science more adequately at these levels.

640 Studies in Chemistry I (NSF) 2 hrs.
The study of basic principles of Chemistry including atomic structure, chemical reactions and their quantitative relations, determination of atomic and molecular weights, solutions and their properties, electrolytes, Chemical equilibrium, covalent and ionic bonds, and the use of conversion factors.
641 Studies in Chemistry II (NSF) 2 hrs.
A continuation of Chemistry 640 with further study of basic principles of organic chemistry.

650 Studies in Mathematics I (NSF) 2 hrs.
A study of the algebraic, geometric, and trigonometric concepts needed for the understanding of the physical and chemical concepts presented in junior-high-school science. Topics will include basic principles of arithmetic, functions, systems of equations, inequalities, introductory set theory, and graphical analysis.

660 Studies in Atmospheric Physics (NSF) 2 hrs.
An introductory study to meteorology including chemical and physical properties of the atmosphere, effect of solar radiation of the atmosphere, jet streams, and their relationships to weather and climatic phenomena.

661 Studies in Physics I (NSF) 2 hrs.
Study of basic principles of physics involving the solar system, graphing and interpreting relations, force and motion, mechanical and heat energy, power, electromagnetic energy, light and spectra, subatomic physics, radioactivity and nuclear energy.

662 Studies in Physics II (NSF) 2 hrs.
A continuation of Physics 661.

663 Studies in Physics III (NSF) 2 hrs.
A continuation of Physics 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 physicochemical 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 Geology 670 with emphasis on paleontology and stratigraphy with the evolution of life illustrated by fossil records. Paleontology 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)  
A sequel to Studies in Biology I (NSF), 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  
Associate Professors Fox, Large

Open to Graduates and Upperclassmen

500 Data Processing for Behavioral Scientists  
An introduction to data processing for students of the behavioral sciences. Emphasis to be placed upon computer programming in one general purpose computer language and individual projects involving a behavioral problem selected by each student. In addition, there will be a survey of a number of computer techniques which show promise for research in the behavioral sciences. Indeed solely for persons in the behavioral science. No special mathematical background required. Prerequisite: Consent of instructor.

504 Social Studies Seminar  
See Arts and Sciences for information on seminars to England, Yugoslavia, and East Africa.

506 Studies in the Non-Western World  
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 Graduates Only

600 Seminar in the Teaching of Social Studies  
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  
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  
Papers and reports on topics such as population, urbanization, economic
affairs, cultural change, political processes, historical evolution, technology, ideologies and others related to developing areas. Students are expected to share their findings with the members of the Colloquium and to acquire a general view of the topics covered.

NSF Courses — Open to Institute Participants Only

630 Studies in Social Sciences (NSF) 4 hrs.
Designed for in-service programs for teachers of Social Science at the elementary or junior-senior high level. Content selected mainly from concepts of specified social sciences needed to teach at the K-12 level.

Social Work

Hokenstad, Director; Professor Burns; Associate Professors Barstow, Boettcher, Braithwaite, Burian, Coffey, Dadlani, Flynn, Kramer, Miller, Platt, Riehman, Webb; Assistant Professors Adams, Kazmerski, McCaslin, Reid, Smith

500-level Courses Open to Graduates and Upperclassmen

600-level Courses Open to Graduates Only

SOCIAL POLICY

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.

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: Social Work 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 manage-
ment of selected social problems. Attention is focused on the roles of policy analysis and formulation, and service delivery in the problem solving process. Specific topic will be announced each semester. May be repeated for credit. Prerequisite: Consent of instructor.

613 Social Welfare and the Law 2 hrs.

The legal bases of organized social welfare and social work practice are examined through the study of selected examples of social legislation and judicial decisions, the legislative process, development of administrative regulations and court organization. Illustrative case studies are used to demonstrate how social workers can manage within the restrictions and opportunities presented by legal institutions and practices in social action and individual case situations. Prerequisite: Social Work 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: Social Work 610 and 611, or consent of instructor.

SOCIAL AND BEHAVIORAL THEORY

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.

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: Social Work 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: Social Work 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: Social Work 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: Social Work 631 or consent of 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: Social Work 631 or consent of instructor.

SOCIAL WELFARE RESEARCH AND TECHNOLOGY

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: Social Work 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 com-
ponent in the problem solving process for social work practice and is related to other professional actions. Prerequisite: Social Work 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: Social Work 661 or consent of instructor.

SOCIAL WORK PRACTICE

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 the instructor.

563 Social Work Concepts in Rehabilitation 3 hrs.

Application of social work problem solving concepts to social-psychological problems in the broad field of physical and mental rehabilitation. Both individualized services and programmatic implications are given consideration. Open to M.S.W. students and students from related professional departments, with consent of instructor.

565 Correctional Process and Techniques 3 hrs.

An overview of the correctional process as it can operate in probation, prison and parole to alter the criminal behavior patterns of legally defined offenders. A broad perspective is employed based on existing criminological theory and accumulated knowledge of the phenomenon of crime and delinquency. Selected techniques for correctional behavior modifications are studied in relation to a typology of normative deviancy in terms of both etiology and rehabilitation. Prerequisite: Consent of instructor.

566 Social Services in Schools 3 hrs.

The role of the Social Worker in elementary and secondary schools and the necessary adaptations in the changes taking place in the educational scene are examined and evaluated. Problem solving approaches are given special attention within the structure and organization of the schools and their relationships with the surrounding community. The specific contributions of a School Social Worker as a helping person to the pupils, the school staff and the homes by various interventive means are explored. Prerequisite: Consent of instructor.
660 The Profession in Contemporary Society 2 hrs.

The profession of social work, its values, traditions, current social action and service investments, and future opportunities are analyzed within the perspective of contemporary social conditions and issues. The premise is developed that the determination of relevancy and saliency for professional practice needs to be 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 2 hrs.

Theoretical and analytical study of social problems for the identification and evaluation of differential levels of intervention which can be applied to prevent or solve problems, or to mitigate or treat their consequences. Consideration will be given to the individual, family, group, community and larger social dimensions of problems for the development of "realistic" intervention models which are 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 2 hrs.

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: Social Work 662 or consent of instructor.

664 Social Work Practice in Special Areas 3 hrs.

Study of problem solving in specialized areas of social work practice. Focus upon the role of the social work practitioner in assessment, goal establishment and intervention in the use of various social work methods in different arenas of practice. Specific topic will be announced each semester. May be repeated for credit up to a maximum of 6 hrs. Prerequisite: Consent of instructor.

666 Seminar in Social Treatment 3 hrs.

Study of the structure and dynamics of social treatment actions and programs, and the application of behavioral change and environmental modification theory. Emphasis is upon differential formulations of problems for consideration of the applicability of various treatment interventions. Treatment concepts are studied which are judged appropriate for: 1) a range of case situations involving social workers in interaction with specific individuals and groups to achieve changes in individual behavior and adaptation, and in specific interpersonal and group relationships, and 2) the case situations involving problems and disconnections between specific individuals and groups, and community institutions. Prerequisite: Social Work 662 or consent of instructor.

667 Seminar in Social Planning and Administration 3 hrs.

First part of a two semester seminar dealing with problems in social welfare planning and administration. Emphasis in the first semester is upon planning for
improving social welfare conditions through program changes and alterations in institutional arrangements. Organizational and interorganizational planning fields are given attention. Prerequisite: Social Work 662 or consent of instructor.

**668 Advanced Seminar in Social Treatment** 3 hrs.

This course is a continuation of Social Work 666. Emphasis is placed on differential utilization of a variety of group and individual treatment approaches to a range of person-problem situations within the framework of different social work tasks, roles and organizational contexts. Prerequisite: Social Work 666.

**669 Advanced Seminar in Social Planning and Administration** 3 hrs.

Second part of a two semester seminar dealing with problems in social welfare planning and administration. Analysis of intraorganizational and interorganizational management issues. Emphasis is placed upon the development of innovative strategies for the structuring and management of social welfare delivery systems. Prerequisite: Social Work 667.

**FIELD EDUCATION**

**671 Field Education in Social Welfare Problem Solving** 4 hrs.

The first six weeks, the students will engage in special tasks and projects focused on contemporary social problems. Intensive attention will be given to the social welfare system with emphasis on examination of alternative means of intervention of the problem solving approach. Content will be integrated through seminar and classroom discussion. Placement in a field unit within a complex providing opportunities for generic tasks will begin the seventh week. Campus or field based seminars weekly for six weeks; bi-weekly thereafter. Prerequisite: Consent of instructor.

**672 Field Education In Social Work Intervention** 4 hrs.

Continuation of placement in field unit within a complex providing generic tasks with emphasis on scientific method and consideration of alternatives in problem solving means. Campus or field based seminars. Prerequisite: Social Work 671.

**676 Field Education in Social Treatment** 4 hrs.

Placement will be in an agency unit through which experiences in social treatment (casework and group work) are offered. Major emphasis will be on development of skill in direct social work practice with clients. For students demonstrating readiness and who anticipate assumption of supervisory tasks immediately following graduation the placement plan and experiences will afford primary emphasis in skill development and in the range of supervisory role tasks and responsibilities. Campus or field based seminars will supplement the field experience. Prerequisite: Social Work 672 or consent of the instructor.

**677 Field Education in Social Planning and Administration** 4 hrs.

Students are provided with direct experience in dealing with problems of community planning for human welfare, and in the administration of service delivery systems. Specialized field placements in social welfare organizations or special programs are arranged in accordance with student interests and abilities. Prerequisite: Social Work 672 or consent of the instructor.
678 Advanced Field Education in Social Treatment 4 hrs.
Continuation of 676. Students will remain in field placement. Direct social treatment (or supervisory) practice will continue. Added emphasis will be directed to skill development requisite to disciplined performance at the beginning level of competence for social work practice in direct treatment (or supervisory) roles. Attention will be given to the concept of self-responsibility for professional development. Experiences will be offered which provide practice in leadership roles. Campus or field based seminars will supplement the field experience. Prerequisite: Social Work 676.

679 Advanced Field Education in Social Planning and Administration 4 hrs.
Continuation of Social Work 677. Further emphasis in professional role development for planning and administrative practice. Skill learning assignments will include supervised work in such areas as planning approaches, program development, budgeting, information systems, personnel, management and the organization of groups for involvement in problem solving activities. Prerequisite: Social Work 677.

SPECIAL SEMINARS AND PROJECTS

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.

681 Graduate Seminar I No. hrs. credit
The first of four coordinating seminar for academic and field planning, integration and evaluation.

682 Graduate Seminar II No. hrs. 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. hrs. credit
The third of four coordinating seminars for academic and field planning, integration and evaluation.

684 Graduate Seminar IV No hrs. 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 Graduates and Upperclassmen

500 History of Social Thought

A critical survey of the social thinking of outstanding students of society from Plato to modern social scientists. Prerequisite: 9 hours of sociology.

504 Sociological Theory

A study of major theoretical viewpoints in contemporary sociology. The course is oriented toward the understanding, application, and extension of these major perspectives. Required for sociology majors. Prerequisite: 9 hours of sociology.

510 Studies in Social Problems: Variable Topics

An examination of a selected area of concern in social problems not intensively covered in other courses. The focus of the course will be substantive, as well as theoretical and methodological. Topics may include such areas as poverty, mental illness, narcotic addiction, alcoholism, aging, and international tensions. May be repeated for credit with a different topic. Prerequisite: Soc. 200 and 210, or consent of instructor.

512 Seminar in Criminological Theory

A critical analysis and evaluation of the leading theories concerning the causes of crime, the nature of criminal personality, and the treatment of convicted offenders. Prerequisite: Soc. 312 or 514, or consent of instructor.

514 Juvenile Delinquency and the Community

A study of juvenile delinquency as a social problem. Extent, causative factors, methods of treatment, and programs of prevention and control are covered. When feasible, community resource people are invited to participate. Prerequisite: Soc. 200 or 600, or equivalent.

515 Social Conflict

An examination of causes of social conflict, strategies in pursuing conflict, and forms of conflict resolution in conflicts between individuals, between groups, and between nations. Prerequisite: 15 hours of sociology, political science, and/or economics.

520 Studies in Social Psychology: Variable Topics

Further analysis of selected topics in social psychology not intensively covered in other courses. Specific topic will be designated in the course title when scheduled. May be repeated for credit with a different topic. Prerequisite: Soc. 320.

523 Contemporary Social Movements

A study of origins, growth, and place in contemporary society of selected social movements, including communism, fascism, Ku Klux Klan, the Townsend
 movement, and the like. Prerequisite: Soc. 200 or 600, or equivalent.

525 Social Psychology of Education 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.

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: 9 hours of sociology or consent of instructor.

549 (Anthropology) Anthropology of Education 3 hrs.
See Anthropology for 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: 6 hours of sociology, including Soc. 200 or 600.

554 Sociological Analysis of Population 3 hrs.
Applications of selected sociological theories to the analysis and interpretation of population characteristics and processes, such as size, growth, social structure, and social change. Prerequisite: 6 hours of sociology or consent of instructor.

556 Social Stratification 3 hrs.
An analysis of the nature, causes, and consequences of class and status differences within societies. Stress is placed upon such concepts as mobility, class, status, and differential power. Conflict and functional theories of stratification are treated. Prerequisite: Soc. 200 or 600, or consent of instructor.

557 Changing Social Systems: Sub-Saharan Africa 3 hrs.
A study of the erosion of traditional tribal systems and the rise of secondary associations and social systems resulting from the impact of European culture and other contemporary world influences. Prerequisite: Soc. 200 or 600, or Anthro. 220, or consent of instructor.

558 Social Forces in Underdeveloped Areas 3 hrs.
An examination of the social factors which influence the growth of industrialization in underdeveloped areas. These factors include cultural tradition, social stratification, and the problems involved in a shift from rural to urban residency. Prerequisite: Soc. 200 or 600, or Anthro. 220, or consent of instructor.

559 Studies in Ethnic Relations: Designated Areas 3 hrs.
An investigation of the structure and dynamics of tribal, ethnic, and race
relations in the context of current theories of racial and ethnic relations. The course will focus on one or another major geographic or cultural area (Africa, Southeast Asia, etc.) and will compare case studies drawn from different countries within this area. May be repeated for credit with a different area. Prerequisite: Soc. 200 or 600, or consent of instructor.

571 **Studies in Social Change: Designated Areas**  
3 hrs.

Analysis of social change in specific geographic or national areas designated in the course title as scheduled. Change is examined through perspectives from history, anthropology, and sociology. May be repeated for credit with a different area. Prerequisite: Soc. 200 or 600.

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.

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: 9 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: 12 hours of sociology or consent of instructor.

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.
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: 9 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 institution and the relationship between the social structure of society and 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 Readings in Sociology 1-4 hrs.
Offers sociology majors with good scholastic records an independent program of specialized study in an area arranged in consultation with the instructor. One to two hours credit per semester, cumulative to four hours. Prerequisite: Consent of instructor and the department chairman.

Open to Graduates Only

600 Social Dynamics of Human Behavior 2 hrs.
An introductory course in sociology for graduate students. This course is not open to those who have had a foundation course in sociology. The concepts of sociology, cultural anthropology, and social psychology essential to understanding human development and social behavior are systematically explored and integrated.

601 Advanced General Sociology 3 hrs.
A comprehensive survey of trends in the major fields of sociology. Prerequisite: Open only to graduate students in sociology.
604 Seminar in Sociological Theory  
An advanced, intensive study of certain selected theoretical topics of contemporary significance. Prerequisite: One course in sociological theory and consent of instructor.

605 Studies in Sociological Theory: Variable Topics  
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  
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: 6 hours of sociology.

612 Seminar in Corrections and Penology  
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  
Advanced study of race relations problems and trends. Prerequisite: Soc. 314 and consent of instructor.

615 Patterns of Intercultural Adjustment  
A study of processes of intercultural adjustment involving different racial, national, and religious groups. The factors giving rise to present-day conflict situations are examined and special emphasis is given to techniques of adjustment through individual and community action. Prerequisite: Soc. 200 or 600, or equivalent.

616 Studies in Social Problems: Designated Topics  
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: 15 hours of sociology and consent of instructor.

622 Publics and Propaganda  
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: 15 hours of sociology and consent of instructor.

625 Advanced Social Psychology  
A study of major theoretical approaches in social psychology and their methodological and substantive implications. Prerequisite: Soc. 320 or equivalent.
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: 15 hours of graduate sociology courses and consent of instructor.

631 Supervised College Teaching in Sociology 1 hr.
Teaching of a section of a sociology course under supervision. Prerequisite: Soc. 630 and approval by department chairman.

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.

633 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: 9 hours of sociology.

634 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.

636 The School and the Community 2 hrs.
Analysis of the school as a social institution in the American community, including consideration of interaction between the school and other basic social institutions, and the sociological significance of community structures, processes and problems for school-community relationships. Prerequisite: Soc. 200 or 600, or equivalent.

Deals with selected sociological aspects of education, such as sociological theory and education, social class and education, social control and education, socialization in the school system, and sociological problems in the education of exceptional children. May be repeated for credit with a different topic. Prerequisite: Soc. 576 or equivalent, and consent of instructor.

680 Studies in Research Methodology: Variable Topics 2 hrs.
A seminar on advanced theoretical and methodological problems which are
important to systematic research in sociology. Suggested specialized topics include: philosophy of the social sciences, relationship between theory and research, and model building and testing. May be repeated for credit with a different topic. Prerequisite: Consent of instructor.

681 Data Collection Techniques  
2 hrs.
Sources and procedures for data collection in sociological research including such topics as: instrument construction, interviewing, observation, content analysis, and the use of documents, records, census data, and other published materials of interest to sociologists. Prerequisite: Soc. 582 or equivalent.

682 Design and Analysis of Social Research  
2 hrs.
A study of research designs and associated techniques of analysis, including principles of measurement, scaling, and systems and change analysis. Prerequisite: Soc. 582 or equivalent.

683 Supervised Research  
2 hrs.
Purpose is to assist student in selecting, formulating, designing, conducting, and reporting the thesis or essay. Includes continuing reports by students of their research progress. Those who plan to do a thesis may, with permission of the instructor and the graduate adviser, continue with Graduate Studies 700, Master’s Thesis. (Not offered in 1972–73.)

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.

685 Studies in Sociological Statistics: Variable Topics  
3 hrs.
The study of advanced statistical techniques which are important to systematic research in sociology. Suggested specialized topics include: factor analysis, advanced nonparametric techniques, path coefficient analysis, and regression analysis. May be repeated for credit with a different topic. Prerequisite: Soc. 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 9 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 15 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.

Speech Pathology and Audiology

Robinson, Head; Distinguished University Professor Van Riper; Professors Erickson, Stromsta; Associate Professors Bate, Lohr, Willis; Assistant Professors Clark, Jetty

Open to Graduates and Upperclassmen

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.

551 Neuropathologies of Speech 2 hrs.

This course is concerned primarily with surveying selected communication disorders associated with neuropathologies. Prerequisites: SPPA 200, 202, 203.

554 Speech and Hearing Therapy in the Schools 2 hrs.

Study of the problems related to the clinical work in speech and hearing therapy in the school setting. Prerequisites: SPPA 351, 353, 354, 355.

555 Speech and Language Development of the Hearing Impaired 3 hrs.

A detailed study of the problems of speech and language acquisition in the deaf and hard of hearing child; orientation to clinical management prerequisite: SPPA 357.

556 Aural Rehabilitation 2 hrs.

Orientation to the clinical management of communication problems associated with auditory impairment. Prerequisites: SPPA 355, 357.

557 Psychosociological Aspects of Hearing Impairment 3 hrs.

This course is designed to acquaint the student with the educational, psychological, sociological and vocational problems and needs of the deaf and hard of hearing. Prerequisite: SPPA 357.
595 Oral Language Development and Dysfunction  
2 hrs.
Provides the student preparing to be a classroom or special teacher with information about the nature of oral language, its development, conditions associated with dysfunction and the principles and methods of treatment for children with specific speech or language disorders. Not open to students who have had Speech Pathology and Audiology 200 or its equivalent.

598 Readings in Speech Pathology and Audiology  
1-4 hrs.
Arranged on an individual basis to provide students the opportunity to pursue independently the study of special areas of interest in depth.

Open to Graduates Only

600 Graduate Study in Speech and Hearing  
2 hrs.
This course is designed to acquaint the entering graduate student with advanced study in speech pathology and audiology. Research in normal and disordered communication is studied with reference to the scientific method, principles of measurement, instrumentation, and experimental techniques. The course requires that either a laboratory or a clinical research proposal be formulated by each student. Required of all students of Speech Pathology and Audiology.

610 Diagnostic Procedures in Audiology  
4 hrs.
An advanced course dealing with those batteries of audiological techniques used for assessing rehabilitative needs and for otologic diagnoses.

611 Hearing Aids  
2 hrs.
Components, characteristics, evaluation, selection, use and maintenance of hearing aids are studied in detail.

612 Pediatric Audiology  
3 hrs.
This course deals with the identification, measurement, and management of hearing impairment in infants and young children.

613 Rehabilitative Procedures in Audiology  
3 hrs.
Specific procedures and techniques for the rehabilitation of individuals with impaired hearing are systematically and critically analyzed.

650 Seminar in Speech Pathology  
2-4 hrs.
Selected topics in speech pathology are systematically explored through critical analyses of literature and through individual study projects. Voice disorders, articulation disorders, language disorders, cleft palate, and stuttering are among the possible areas of study. Topics vary from semester to semester and are announced in advance. May be repeated.

651 Seminar in Speech and Hearing Science  
2-4 hrs.
Selected topics in speech and hearing science are systematically explored through critical analyses of literature and through individual study projects. Instrumentation, procedures and techniques employed in perceptual, physical and physiological analyses of normal speech and hearing are among the areas considered. Topics vary from semester to semester and are announced in advance. May be repeated.
652 Seminar in Audiology 2-4 hrs.

Selected topics in audiology are systematically explored through critical analyses of literature and through individual study projects. Pediatric audiology, geriatric audiology, hearing aids, residual hearing, and aural rehabilitation are among the possible areas of study. Topics vary from semester to semester and are announced in advance. May be repeated.

653 Diagnosis and Appraisal 3 hrs.

This course is intended to provide basic information needed in the examination of persons with communication disorders. Interviewing techniques, examination procedures, standardized testing, and clinical assessment techniques are the basic content of the course.

654 Diagnostic Procedures in Speech Pathology 3 hrs.

In this course the student is introduced to instruments and techniques designed specifically for the appraisal and diagnosis of communication disorders and gains experience in their application. Approximately two hours per week of participation in out-patient diagnostic examinations is required.

657 Disordered Language Development 3 hrs.

Procedures and techniques for identification, diagnosis, and clinical management of developmental disorders of language are explored intensively in this course.

658 Theoretical Bases for Therapy 3 hrs.

In this course disorders of communication are examined in terms of servosystem theory, learning theory, and personality theory.

659 Principles of Professional Practice 2 hrs.

Currently identifiable professional and philosophical questions are defined and studied with reference to the history of the development of the profession of speech pathology and audiology.

660 Voice Disorders 2 hrs.

Organic and functional disorders of laryngeal and resonator origin are studied in depth.

661 Articulation Disorders 2 hrs.

This course considers in detail the nature and treatment of functional misarticulations and of misarticulations associated with cleft palate.

662 Stuttering 3 hrs.

Theories and therapies applicable to the understanding and clinical management of stuttering are studied in depth.

663 Aphasia in Adults 3 hrs.

This course deals comprehensively with the identification and treatment of communication problems in the adult aphasic individual.
College of Business

ARNOLD E. SCHNEIDER,
Dean

DARRELL G. JONES
Associate Dean

Graduate Offerings:
Accountancy
Business Education and Administrative Services
General Business — Finance — Law
Management
Marketing
College of Business

The College of Business includes the departments of Accountancy, Business Education and Administrative Services, General Business, Management, and Marketing. The function of the College of Business is to prepare students for positions in business, industry and government. A program leading to the degree of Master of Business Administration is designed to prepare graduate students to function effectively in administered positions. In addition, the degrees of Master of Science in Accountancy and other Business areas and Specialist in Business Education are offered. The College of Business also cooperates with the College of Education in offering the Teaching of Business Education curriculum.

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

Accountancy

Burke, Head; Professors Everett, Neubig, Welke, Wetnight; Associate Professors Mitchell, Newell, Sheppard; Assistant Professors Daniels, Morris, Schaeberle, Zelechowski

Open to Graduates and Upperclassmen

516 Auditing

The theory and practice of making audits of business enterprises and government agencies.

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: Accountancy 322.

524 Studies in Tax Accounting

Special studies related to tax problems of individuals, partnerships and corpo-
rations. Emphasis on corporation taxes, trusts and estate tax problems. Gift and estate taxes and an introduction to tax planning are included. Prerequisite: Accountancy 324 or written consent of instructor.

598 Readings in Accounting 1-4 hrs.

Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Written consent of instructor.

Open to Graduates Only

505 Administration Accounting 3 hrs.

Basic topics are the accumulation of financial data and the preparation of financial statements. Included are accounting topics related to business assets and entities and an introduction to the analysis and interpretation of financial statements. This is a program prerequisite course for MBA and MS students in the College of Business (therefore graduate credit is not earned). Closed to students with credit for Accountancy 210, 211 or equivalent. May be taken on a credit-no credit basis.

601 Research Methods in Accounting 3 hrs.

This course is designed to familiarize the student with the methods and procedures for planning, conducting, and reporting individual research projects in accounting.

606 Advanced Financial Accounting 3 hrs.

An intensive study of asset valuation, liabilities, corporate capital, and their relationship to income. Prerequisites: Accountancy 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 analyses 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: Accountancy 505 or equivalent.

608 Advanced Accounting Theory 3 hrs.

A study of the underlying concepts and principles of corporate accounting. Prerequisite: Accountancy 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: Accountancy 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: Accountancy 324 or written consent.

Business Education and Administrative Services
Moskovis, Head; Professors Jones, Marietta, Niemi; Associate Professors Bournazos, Hatch, McKitrick; Assistant Professors Beelick, DeYoung

Open to Graduates and Upperclassmen

554 Topics in Business Communications  3 hrs.

An intensive study of a selected topic in Business Communication such as report writing, communication effectiveness and attitude change, communication media in business, business and educational publicity, and others. The topic will be announced in advance. May be repeated for credit.

556 Office Management  3 hrs.

Areas of office services from the managerial viewpoint. An overview of the problems of organizing, constructing, installing and maintaining office systems and supervising and training office personnel.

583 Coordination Techniques in Office Education  2 hrs.

A study of the role and responsibilities of the office education coordinator in his educational system. Surveys the organization of the office education program, the course content of the related class, supervision of on-the-job trainees, the establishment of working relationships among the school, business and home; examines latest pertinent research.

584 Improvement of Instruction in Shorthand and Secretarial Subjects  2 hrs.

A study of the latest research findings, teaching materials and procedures, methods of evaluation, and future instructional requirements in Shorthand and Secretarial Subjects.

586 Improvement of Instruction in Typewriting  2 hrs.

A study of the latest research findings, teaching materials and procedures, methods of evaluation and future instructional requirements in Typewriting.
588 Improvements of Instruction in Bookkeeping, Basic Business Subjects 2 hrs.

A study of the latest research findings, teaching materials and procedures, methods of evaluation, and future instructional requirements in Bookkeeping and Basic Business.

589 Organization and Teaching of Office Practice 2 hrs.

A consideration of aims and content of office-practice course with plans and techniques for organizing and teaching the subject matter of the course and its laboratory material.

596 Independent Study 1-4 hrs.

A directed independent project in an area of business education or administrative services. May be repeated for credit.

598 Readings in Business Education and Administrative Services 1-4 hrs.

A series of direct readings in the area of Business Education or Administrative Services. Prerequisite: Consent of department head.

Open to Graduates Only

600 Seminar in Business Education and Administrative Services 3-4 hrs.

Intensive problem solving in areas of Business Education or Administrative Services. May be repeated for credit.

680 Principles of Business Education 3 hrs.


682 Guidance in Business Vocations 2 hrs.

The challenges of 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 counseling of the business student.

683 Supervision and Administration of Business Education 2 hrs.

Principles and problems involved in the administration and supervision of business education programs. Emphasis is placed on the work of the department head and city and state business education supervisors.

684 Comparative Shorthand Theory 3 hrs.

Analysis of the similarities and differences in psychological approaches, theory, memory load and methodology employed by various modern shorthand systems.

685 Research in Business Education 3 hrs.

An examination and analysis of recent doctoral theses and other research in business education with emphasis on utilization of these findings in the upgrading of instruction. Research tools and methodology are also examined.
687 Post-Secondary Business Education 2 hrs.

The consideration of objectives, materials, and methods of teaching business subjects in junior colleges, community colleges, universities, vocational institutes, and proprietary business schools.

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.

### General Business

**Schneider, Head**

**FINANCE AREA**

Professors Burdick, Grossnickle; Associate Professors Edwards, Wiseman; Assistant Professor Garg; Instructor Walsh

Open to Graduates and Upperclassmen

520 Security Analysis 3 hrs.

A sophisticated analysis of investment securities from the viewpoint of establishing meaningful valuation techniques. The course is designed for students anticipating careers in investment management in industrial firms and/or financial institutions. Prerequisite: Finance 326.

521 International Finance 3 hrs. Winter, Spring, Summer

A study of contemporary problems in international finance. The course examines the international money markets, working capital considerations and capital budgeting problems as faced by the multinational corporation. Prerequisite: Finance 320 or equivalent, or consent of instructor.

562 Advanced Life and Health Insurance 3 hrs.

By means of problems and cases this course analyzes in detail the following areas: group life and health insurance, business life and health insurance, insured pension plans and estate and tax planning. Prerequisite: Insurance 422.

528 Problems in Multiple-Line Insurance 3 hrs.

The topics studied by means of cases and problems in this course include multiple-line insurance operations, special problems in functional areas of industry operations and personal and commercial risk surveys and analysis. Prerequisite: Insurance 424.

Open to Graduates Only

505 Administrative Finance 3 hrs.

Surveys financial principles and investigates applied techniques practiced in performing the financial management function of the business enterprise. Basic to
understanding financial principles, studies are made of financial tools, terminology, financial instruments, and analysis through problem solving. 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 Finance 320 or equivalent. Offered and to be taken on a credit-non credit basis.

608 Financial Management 3 hrs.
Case study of the principles and problems underlying the management of capital in the business firm. Stresses the financial officer's responsibilities. Skills developed in the marshalling and interpreting of figure data in such activities as making and implementing capital expenditure policies, solving short-term and long-term financing problems, establishing dividend policies, effecting mergers and consolidations, and adapting to trends in financial markets. Demonstrates financial management's role in the total management effort. Prerequisite: Finance 320 or equivalent.

620 The Capital Market 3 hrs.
Study of the sources and flow of demand and supply of credit. The business application of monetary theory to financial institutions and their operational problems. Prerequisite: Finance 310 or equivalent.

621 Investment Analysis and Management 3 hrs.
A detailed analysis of the investigation of corporate securities as long-term investment media, largely from the standpoint of the individual investor. Investigates the techniques for security valuation and portfolio management, with some discussion of financial institution investment procedure. Considers mechanics, markets, institutions and instruments important to the investment process. Not open to students with credit earned in Finance 326 or its equivalent. Prerequisite: Finance 320 or equivalent.

622 Corporate Financial Problems (Topics) 3 hrs.
A study of current financial management problem areas. A specific area will be covered each time course is presented. May be repeated. Prerequisite: Finance 320 or equivalent.

624 Financial Statement Analysis 3 hrs.
Intensive financial analysis to establish trends and fiscal controls in business operations. Structural investigation of financial statement relationships utilizing ratios, capitalization of earnings, and other analysis media fundamental of management decision and action. Prerequisite: Consent of instructor.

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

628 Risk Management in Business 3 hrs.
This course includes the functions of risk management: responsibilities of risk managers and their staff; sources of risk information; analysis of business risks; alternative methods of handling risks; selection of proper insurance coverages; and
selection of carriers and intermediaries. Case analysis is used. Prerequisite: Consent of instructor.

LAW AREA

Professor Morrison; Associate Professors Bliss, Casey; Assistant Professors Grossman, McCarty

Open to Graduates and Upperclassmen

541 Law of Sales and Personal Property 3 hrs.

The study of law as it applies to the sale of goods emphasizing the legal aspects of marketing a product. Prerequisite: Law 340.

542 Law of Real Property 3 hrs.

The study of land ownership, sales agreements, including the legal duties of the real estate broker, mortgages, land contracts, leases, zoning, condemnation and urban land development problems. Prerequisite: Law 340.

543 Legal Problems of International Business 3 hrs.

A study of the United States, foreign and international legal problems affecting business enterprises in transnational operations. Prerequisite: Law 340.

544 Law of Business Organizations 3 hrs.

Study of business organizations including partnerships and corporations. Prerequisite: Law 340.

Open to Graduates Only

503 Introduction to Legal Principles 3 hrs.

A comprehensive study of the legal environment of business. This is a program prerequisite course for MBA and MS student in the College of Business (therefore graduate credit is not earned). Closed to students with credit for Law 340 or equivalent. Offered and to be taken on a credit-no credit basis.

607 Legal Controls of the Business Enterprise 3 hrs.

An analysis of the current legal problems as they apply to the control and regulation of various types of business enterprises. Prerequisite: Law 340.

650 Managerial Aspects of Labor Law 3 hrs.

Background and consequences for business policy of law governing collective relationships between employers, employees, and their representatives with special emphasis on interpretation and evaluation of current legislation. Prerequisite: Law 340.

GENERAL AREA

Open to Graduates and Upperclassmen

504 International Business Seminar 1-6 hrs.

A foreign study seminar designed for qualified and capable undergraduate
students, graduate students, teachers, and business executives. The seminar introduces participants to a first-hand knowledge of business operations abroad through on-site inspection of foreign manufacturing, marketing, financial, and governmental organizations, supplemented by coordinated faculty lectures and assigned readings. Undergraduate or graduate credit of six hours, in one of the following departments upon consent of department head: Accounting, Business Education, General Business, Management or Marketing.

598 Readings in General Business 1-4 hrs.

Directed individual study of bodies of knowledge in business administration which will enhance the student's areas of interest and competence. Prerequisite: Written permission of instructor.

Open to Graduates Only

600 Seminar in Business 3 hrs.

Intensive problems solving in the primary business fields. Consent of instructor required. May be repeated for credit.

Management

Keenan, Chairman; Professors Schneider, Booker, Hartenstein, Leader, Rizzo; Associate Professors Bradley, DeVries, Hill, Squire, Upjohn; Assistant Professors Dorr, Feher, Mason, Pagel, Stam, Wallace

500 Management Literature 1-4 hrs.

Studies in specialized areas of the management literature. The students will prepare an original paper on an assigned topic. Prerequisite: Permission of instructor.

540 Advanced Statistics 3 hrs.

A second course in statistics complete enough to be used with limited background. Includes probability theory, t, Z, F, and binomial probability distributions, hypothesis testing with sampling theory and Type I, Type II errors, point and interval estimates, statistical inference, comparison tests (two-sample and K-sample), association tests (correlations and regression), and nonparametrics tests. Prerequisite: MGMT 200.

553 Planning and Analysis for Production 3 hrs.

An examination of modern methods of analysis, their relation to the production process and their utilization in management planning. Cases and problems will be utilized. Prerequisites: Econ. 200, 201 and MGMT 200.

554 Introduction to Management Science 3 hrs.

Modern scientific techniques used in business and industry for controlling operations, maximizing profits or minimizing costs. Allocation of men, money, and machines among alternative uses. Other strategies and control methods applicable to management, marketing, and finance. Prerequisite: MGMT 200.
555 **Electronic Data Processing (Topic)** 3 hrs.

Computer programming in BASIC, FORTRAN IV and COBOL languages. Special topics relating to the planning, organization and direction of management information systems in business, industry and government. The course may be repeated for different programming languages and topics.

557 **Inventory Management** 3 hrs.

The practical application of modern management techniques in the definition and solving of problems in inventory systems. Prerequisite: MGMT 200 or equivalent.

564 **Simulation Models** 3 hrs.

The student will develop a model for the integration of the functional areas of business to create more successful management policies and organizational structures.

598 **Readings in Management** 1-4 hrs.

Directed individual study of bodies of knowledge not otherwise treated in departmental courses. Prerequisite: Permission of instructor.

503 **Introduction to Statistical Practices** 3 hrs.

A survey of statistical reasoning and techniques. If possible the student should elect to take the waiver examination administered by the Department of Management without enrolling for the course. A list of materials and texts may be obtained from the Department. 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 MGMT 200 or equivalent. Offered and to be taken on a credit-no credit basis.

505 **Introduction to Management Analysis** 3 hrs.

A survey of the range of historical and current work in management theory and practice. If possible the student should elect to take the waiver examination administered by the Department of Management without enrolling for the course. A list of materials and texts may be obtained from the Department. 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 MGMT 300 or equivalent. Offered and to be taken on a credit-no credit basis.

600 **Seminar in Management (Topic)** 3 hrs.

Intensive problem solving in advanced management topics, including the preparation of a major staff report. Repeatable for different topics.

601 **Data Acquisition, Reduction and Interpretation** 3 hrs.

The uses and methods of research are examined as a strategy for reducing risk and uncertainty. Strategies will be evaluated under the criteria of minimizing error, economizing effort and effectively achieving the project objectives. Data classification, collection, recording and transformation techniques are related to the use of information for making judgments and decisions.
602 Data Processing and Computer Usage 3 hrs.
This course will provide the student with the opportunity to relate selected problems in his discipline to readily available analysis subroutines. Alternative methods of data manipulation will be reviewed.

607 Management Analysis and Practice 3 hrs.
Basic core course in Management for the MBA program. The spectrum of management theory and practice will be reviewed.

630 Systems Analysis (Topic) 3 hrs.
A project team effort to analyze a specified problem with the topic area listed. Separate research teams will be structured around relevant experience and training. Advanced standing (21 hours) and departmental permission required. May be repeated for credit.

642 Statistical Interpretation 3 hrs.
A survey of the advanced statistical techniques as applied to business problems. Includes probability theory; estimation of proportion, means and variances; test of hypothesis, simple and multiple regressions. Also includes topics selected from the following fields: sequential analysis; nonparametric methods; elements of experimental design; analysis of variance and introduction to statistical decision theory. Prerequisite: MGMT 200.

651 Analysis of Administrative Behavior 3 hrs.
Analysis of the contributions of management theory and of the behavioral sciences to modern administrative practices; group and individual behavior as related to and affected by the administrative process. Lectures, cases, conferences. Not open to students having received credit for MGMT 451.

652 Business Policy 3 hrs.
Integration of background acquired by the student from such varied fields of instruction as accounting, finance, industrial management, law, personnel administration and marketing. Top management problems emphasized.

655 Organization Theory 3 hrs.
An interdisciplinary approach towards the analysis of the variables affecting the modern business organization with emphasis on the relationship of the role of the social sciences to the behavior of the segments of the firm.

658 Advanced Management Practices 3 hrs.
Independent study of current trends and advanced problems in the organization and management of complex organizations. Prerequisite: 21 hours. May be repeated for credit.
Marketing

Open to Graduates and Upperclassmen

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: Marketing 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: Marketing 370, Management 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: Marketing 370, Management 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: Marketing 370 or permission of instructor.

576 Marketing Problems 3 hrs.
Analysis of current marketing problems utilizing the case method of study. Prerequisite: Marketing 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 Graduates Only

505 Marketing Analysis 3 hrs.
A comprehensive analysis of marketing theory and the undergraduate course in Marketing. 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 Marketing 370 or equivalent. Offered and to be taken on a credit-no credit basis.

607 Marketing Management 3 hrs.
Analysis of marketing activities from management point of view. Includes
Marketing

study of decision making relative to competition, demand analysis, cost analysis, product analysis, product design, promotion, pricing, and channels of distribution. Prerequisite: Marketing 370 (or equivalent) or 605.

671 Market Measurement and Behavior  3 hrs.
Designed to acquaint graduate students with the growing body of tools available in the behavioral sciences and mathematics as adapted to the solution of marketing problems. Includes material in the areas of psychology, sociology, traditional statistics, Bayesian statistics, and decision theory. Consent of instructor required.

678 Seminar in Marketing  3 hrs.
Intensive problem solving in the primary business fields. Consent of instructor required.

679 Market Programming  3 hrs.
Designed for special emphasis toward developing a total marketing strategy within an organization. Practical application of the marketing tools and techniques to a current problem originating in a business organization. Prerequisite: Consent of instructor.
College of Education

JOHN E. SANDBERG,  
Dean

KENNETH F. SIMON,  
Associate Dean

MORVIN A. WIRTZ,  
Associate Dean

Graduate Offerings:  
Counseling and Personnel  
Educational Leadership  
Physical Education for Men and Women  
Special Education  
   Blind Rehabilitation  
Teacher Education
College of Education

Counseling and Personnel

Martinson, Head; Professors Betz, Carlson, Engle, Faunce, Griffeth, Manske; Associate Professors Lamper, Mazer; Assistant Professors Bullmer, Urbick

Open to Graduates and Upperclassmen

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 counselors, teachers and other personnel workers to: 1) basic resources available in the area of occupational, educational and personal social information, 2) theories of vocational development and their application to the processes of guidance and counseling, and 3) the world of work, and especially an analysis of work's impact on American culture. Open to all students and is a requirement for all counseling majors.

583 Guidance Workshop 2-4 hrs.
Designed for teachers and counselors who wish to study particular guidance problems and procedures in relation to their local guidance program. Open to all students, but is not intended for counseling majors.

584 Elementary School Guidance 2 hrs.
Designed to give teachers, administrators, and elementary counselors an understanding of the principles and techniques of guidance in elementary schools. Open to all students and is a requirement for all elementary counseling majors.

598 Readings in Guidance 1-4 hrs.
An advanced student with good academic record may elect to pursue independently the study of some topic having special interest to him. The topic chosen must be approved by the instructor involved, and arrangements made with his consent. May be selected more than once.

Open to Graduates Only

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.
680 The Personnel Worker and His Role 4 hrs.

A basic introductory unit encompassing a thorough investigation of philosophic concepts undergirding counseling and personnel programs, and a survey of the history and principles of such services. Students participate in basic encounter experiences, guided by a staff member other than the instructor, which may afford an opportunity for them to progress in self understanding and self evaluation. The departmental requirement for personal counseling must be met prior to completion of this course.

681 Organization and Administration of Pupil Personnel Services 4 hrs.

A unit emphasizing the organization and administration of pupil personnel services at the local, state and national level. Competencies are also developed in the use of questionnaires, school records, evaluations, autobiographies, anecdotal records, sociometrics, rating scales, case studies and conferences, and parent teacher conferences. 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. Prerequisite: C-P 680.

682 Research in Counseling and Personnel Services 4 hrs.

This course may be substituted for Education 681 id the student is not planning to become an elementary or secondary school counselor. The unit is 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 to the staff member who is responsible for guiding the total experience. Prerequisites: C-P 680, TEED 601 and consent of adviser.

683 Theory and Laboratory Practice in Counseling 4 hrs.

A unit designed to synthesize counseling theory and laboratory experiences. Learning activities, such as tape recordings, video tapes, role playing and actual counseling sessions, are provided to help make theoretical constructs concrete and practical. The laboratory experience involves counseling contacts which expose the candidate to various aspects of the counseling relationship. Students participate in basic encounter experiences guided by a staff member other than the instructor. Prerequisites: C-P 680 and 681, or 682.

684 Supervised Practicum and Professional Experience 4 hrs.

An advanced unit designed to continue and enlarge upon the laboratory experiences initiated in Education 683. A supervised professional experience is provided in settings appropriate to the student’s vocational objectives such as schools and colleges and governmental and social agencies. Prerequisites: C-P 680, 681 682, and 683.

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 person-
nel 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:

1. Analysis of individual
2. Evaluation of Personnel Services Programs
3. Creative Expression and Personal Flexibility
4. The Development and Coordination of Personnel Services Programs
5. Administration of Student Personnel Programs in Higher Education
6. Philosophy of Science for the Behavioral Sciences
7. Counseling Theories

687 Group Procedures in Education 2 hrs.

An analysis of the role and function of group procedures in education special emphasis on the elements of group process and interaction. Attention is given to relevant research in group procedures. Limited experience for students is provided in group counseling, group guidance, and task group work.

691 Counseling Supervision 2-4 hrs.

Designed for advanced graduate students who plan to assume leadership responsibilities in the continuing education of counselors. Includes didactic discussions of the elements of counseling supervision, and practical experience in counselor education.

693 Advanced Practicum in Counseling and Psychotherapy 4 hrs.

An advanced practicum designed to increase the competency of experienced counselors and therapists. Staffing conference approach to the analysis of continuing cases presented by the participants will be combined with tapes and live demonstrations of advanced techniques, i.e. desensitization, hypnosis. Prerequisite: Consent of instructor.

694 Vocational Development Theory 2 hrs.

A critical examination of existing theories of vocational development, the motivation to work and their application to the counseling process. Research pertaining to vocational development and the world of work will be analyzed.

695 Student Personnel Services in Higher Education 2 hrs.

History of growth and administration of student personnel services in community colleges, four-year colleges and universities. Recognition is given to needs of students and to basic objectives of specific student personnel services including selection and admission of students, orientation, housing, counseling, vocational choice, health, religion, student financial aid, foreign students, extracurricular, student government and discipline. Opportunity to visit and evaluate college personnel programs will be provided.

696 Practicum in Group Counseling 3 hrs.

Supervised practice in counseling with groups of varying types and ages. Staffing conferences of on-going groups will use audio and video tapes, content analysis and other evaluative techniques. Prerequisite: Consent of instructor.
Educational Leadership

Professors Boles, McCuskey, Martin, Viall, Weaver; Associate Professors Davenport, Dykstra, Hellenga, Ploughman

660 Administration and Supervision 2-4 hrs.

Offerings in this area are intended to allow educational leaders to acquire the general understandings, skills, and tools necessary in the operation of educational agencies and to provide service courses for teachers and other education personnel. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:

a. Administration and Supervision of Adult Education
b. Principles of Community Education
c. Practicum in Community Education
d. Planning of Educational Facilities
e. School Finance
f. School Business Management
g. Mott Administration Seminar
h. Introduction to Educational Leadership (the first course in any degree program in this department)
i. School Law
j. School Principalship
k. Field Seminar (an interdisciplinary approach to in-service problem)

661 Human Relations 2-3 hrs.

These offerings are for students who are expected to have background in the behavioral sciences. Emphasis is on skills that give one proficiency in working with people: the ability to understand people and how they work and live and get along together; and to use that understanding in getting the best from people, individually and in groups. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings in any one semester or session.

Typical topics to be offered include:

a. Supervision
b. Administration of Staff Personnel
c. Mott Colloquium
d. Public Relations
e. Practicum in Leading
f. Teacher-Administrator Relationships

662 Concept Formation 2-4 hrs.

Each of these offerings focuses on concepts that should help the student to see the relationships of parts to wholes, of education to the larger culture, of specific
occupations to overall institutionalized functions and to the world of work. Topics vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:

a. The American Educational Scene
b. The Process of Curriculum Development
c. Theory of Leadership
d. Introduction to Operations Analysis
e. Educational Data Processing
f. Policy Making in Higher Education

663 Research 2-15 hrs.

Offerings are intended to provide the necessary understandings, attitudes, and skills to make every student working for a degree in this department a competent and discriminating consumer of research. The student who wishes to do so can specialize sufficiently to become a competent researcher or a director of research. Topics will vary from semester to semester, and a student may take more than one topic. See schedule for specific topical offerings and credit hours in any one semester or session.

Typical topics offered include:

a. Introduction to Research
b. Design – Data Analysis I
c. Design – Data Analysis II
d. Dissertation Seminar

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 Graduates and Upperclassmen

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.
Physical Education for Men and Women

Men’s Department Head, Hoy; Women’s Department Head, Cheatum; Professors Dales, Large, Ray, Roell; Associate Professors Chambers, R. Davis, Doolittle, Hetherington, Jevert, Jones, Miller, Slaughter, Zabik; Assistant Professors Brown, Creed, Gamble, Olson, Orlofsky, Robertson

Open to Graduates and Upperclassmen

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.

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.

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, Biology 210 and 219, or consent of graduate adviser.

586 Dance and the Related Arts 3 hrs.
The study of the common principles and elements of dance, drama, music, art and television. Dance majors and minors, Aquatics majors and Swim minors.
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: Biology 210 and 219.

598 Readings in Health, Physical Ed., 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 Graduates Only

630 Advanced Coaching 1 or 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.

Archery—Purchase and care of equipment, preparation for camp and school instruction, conditioning exercises, tournament organization.

Baseball—Public relations, practice organization, conditioning techniques and game preparations.

Basketball—Practice organization, defensive and offensive strategy, scouting techniques.

Football—Organization of practices, defensive and offensive strategy, scouting techniques.

Golf—Meets, tournaments, purchase and care of equipment.

Gymnastics—Cinematic analysis and spotting of advanced skills, judging of meets.

Swimming—Conduct of meets, pool programming, sanitation and operation, beach and camp programs.

Tennis—Training and conditioning, drills for indoor instruction, and officiating techniques.

Track—Training and conditioning for individual events, planning and conduct of meets.

Wrestling—Administration of dual meets and tournaments, relations with community and school personnel, introduction to collegiate and olympic moves and counters.

631 Prevention and Treatment of Athletic Injuries 2 hrs.

The prevention, etiology, symptoms, pathology, and prognosis of those injuries occurring most frequently will be studied. Treatment techniques and rehabilitation procedures will be demonstrated. Medical specialists will lecture in their special areas related to athletic injuries.
640 Rhythms in Elementary Education 2 hrs.
A study of the rhythmic movement needs of the elementary school child, including: suggested methods of teaching through which children are stimulated to create their own responses in rhythmic play; folk and social dancing as outgrowths of movement fundamentals; and teaching examples, sample less plans, and up-to-date reference sources. Lecture and activity periods.

641 Physical Education for the Elementary Teacher 2 hrs.
A study of the developmental needs of the child in terms of physical activity; the role of physical education in childhood education; the responsibility of the classroom teacher in this area; demonstrations and practice in teaching activities.

650 Evaluation in Health, Physical Education, and Recreation 2 hrs.
Acquaints students with the theory, selection, construction, administration, interpretation of appropriate tests in the field. Class activity will include study and discussion of selected tests, application, scoring, interpretation, and construction of tests.

651 Research Procedures in Health, Physical Education, and Recreation 2 hrs.
Introductory principles of scientific inquiry, research methods applicable to these fields, evaluation of published research, and procedures for developing a research design.

652 Historical and Philosophical Foundations of Physical Education 2 hrs.
Designed to examine the role of physical education in ancient and modern times. Stress is given to significant concepts, events, and people which have influenced this discipline. Special attention will be paid to developments resulting from the work of international professional organizations interested in H.P.E.R.

660 Current Studies in the 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.

Deals with modern trends and with instructional and supervisory problems involved in conducting an effective program of physical education. Critical appraisal of present practices.

A course in the development of a practical, progressive physical educational program for the elementary and secondary schools. A review of children's characteristics, particularly those concerned with physical education will be used as a basis for thorough analysis of the development of fundamental and basic skills at the various age levels.

663 Supervision in Health, Physical Education, and Recreation 2 hrs.
Applicable to men and women physical education specialists who have the responsibility of supervising physical education teachers. Concerned with studying the role of the supervisor and appropriate and effective techniques unique to
physical education and their application to the teacher-pupil learning the situations. Discussions of the supervisory responsibility and function in city, county, and state school systems.

670 Community Recreation 2 hrs.
Problems in community recreation. The essential elements pertaining to leadership, areas, facilities, programs, activities, and methods of organization and administration are concerned. A study is made of outstanding programs in operation. Recreation material is surveyed.

671 Camping Administration 2 hrs.
The organization and administration of camps and their program requirements and standards. Consideration is given to philosophy and objectives, personal skills in camp activities and methods of teaching them. Visits to camps are made and out-of-door activities are experienced.

672 Methods and Materials in Recreation 2 hrs.
Best methods and materials for the teaching and organization of recreation activities. Activities used in recreation will be presented. Opportunities for organization and actual participation and leadership will be given. This course is open to all graduate students.

680 Advanced Studies in Health, Physical Education or Recreation (HPER) 1. 2, or 3 hrs.
Areas of study.
A. Business Procedures and Public Relations
B. Comparative Physical Education
C. Planning Facilities for Health, Physical Education and Recreation
D. Outdoor Education and Recreation
D. Lifetime Sports

Special Education
Eisenbach, Head; Professors Blasch, Sellin, Wirtz; Associate Professors Nicolaou, Karlela, Westley; Assistant Professors Ashbaugh, Hannaford, Henderson, Howell, Lennon, Suterko; Instructors Rittersdorf, Weessies, Widerberg

Open to Graduates and Upperclassmen

512 Workshop in Special Education 2-4 hrs.
Designed for teachers, counselors, psychologists, social workers and others interested in studying selected aspects of special education at appropriate locations, such as state hospitals and special schools. A variety of instructional experiences are provided, including conferences.

528-29 Interdisciplinary Education and Rehabilitation Techniques 4 hrs. (2 per. sem.)
This course is intended to develop a thorough understanding of the roles of the
various disciplines involved in the diagnosis, education, and rehabilitation of exceptional children and youth. Lectures, taped and filmed interviews, and live demonstrations are utilized.

530 Education of Exceptional Children 3 hrs.

This course is primarily concerned with children and youth who are visually, 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.

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 counselor, psychologists, social workers and other auxiliary personnel. Course objectives include an understanding of the causes, diagnoses, classification and interpretation of mental deficits. Prerequisite: Special Education 530 or equivalent.

533 Diagnostic and Prescriptive Techniques in Special Education 4 hrs.

A thorough study of educational diagnostic instruments and techniques will precede the student's utilization of these measures in evaluating exceptional children in his curricular area. Diagnostic findings will be translated into individualized educational prescriptions. For majors enrolled in Special Education curriculums and to be taken concurrently with Special Education 534. Prerequisites: Special Education 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: Special Education 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: Special Education 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: Special Education 530 or equivalent.

588 Behavior Disorders in School-Aged Children 3 hrs.

Deals with the psychoeducational aspects of disturbed or disturbing behavior as related to the school program. Issues and problems associated with normal development, concepts of diagnosis, and the incidence of maladjustment will be reviewed. The characteristics, causes, diagnosis, and treatment of the effects of such conditions in children as psycho-neurosis, mental subnormality, juvenile delinquency, psychosis, learning disability, and social disadvantage will be examined in terms of their educational implications. Therapeutic, environmental, and classroom interventions will be presented and strategies for prevention will be analyzed. Prerequisites: Special Education 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: Special Education 530, 531, 588 and consent of Department.

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 Graduates 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: Special Education 530, 588 and 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.

634 Theory and Practice in the Education of Perceptually Handicapped Children 4 hrs.

This course explores the biological, psychological, and educational problems of children who exhibit specific characteristics associated with brain injury and perceptual disturbances. The underlying theoretical principles of perceptual and conceptual learning are presented. Educational procedures are discussed and various methodologies are examined. Children with perceptual handicaps are studied, and the students learn to prepare appropriate teaching devices. Prerequisite: Ten hours in Special Education and consent of Department.

635 Counseling Parents of Exceptional Children 3 hrs.

This course explores the dynamics of parental reactions to their handicapped children. Techniques of dealing with stress situations in the home, in the school, and in the community are developed. The students are given opportunities of working with parents of exceptional children and helping them in coping with the problems they face. Prerequisite: Ten hours in Special Education and consent of Department.

636 Topical Seminar in Special Education 2 hrs.

To provide a survey or in-depth coverage of topics directly related to the education of exceptional children and youth. May be repeated for credit. Prerequisite: Consent of the Department.

638 The Application of Behavior Theory to Classroom Teaching 3 hrs.

Emphasizes the implications of the principles of behavior theory for classroom teaching techniques, particularly with exceptional children. Introduction to general and specific methods for generating, strengthening and maintaining desirable behavior, and methods for weakening undesirable behavior. Both academic skills and non-academic behaviors will be included. Normal and abnormal behaviors will be discussed. Direct experiences in modifying the behavior of a school-age child will be arranged. Prerequisite: Consent of Department.

640 Organization and Administration of Special Classes and Services for Exceptional Children 2 hrs.

Principles and practices of organization and administration of special programs
at state, county, and local levels will be considered, including legal aspects of state aid. Prerequisite: Consent of Department.

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 Rehab. students only. Prerequisite: Consent of instructor.

674 Directed Teaching, 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.

Blind Rehabilitation
Open to Graduates and Upperclassmen

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, eye prosthesis and low visual aids.

591 Braille and Other Communication Methods 2 hrs.

Familiarizes the student with the basic rudiments of Braille reading and writing. Familiarization with other means of communication used by the blind.

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.
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.

Open to Graduates Only

690 Teaching the Adult Blind  
4 hrs.
Teaching and learning as they are affected by blindness. Emphasis is placed on the skills and techniques required in teaching independent living to the blind adult. Opportunity for individual practical application of methods is afforded the students.

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 Orientor in working with multi-handicapped blind individuals.

Teacher Education

Distinguished University Professor Travers; Professors, Adams, Ansel, Buelke, Chiara, Curl, Erickson, Govatos, Griggs, Johnson, Kanzler, Lambe, Lloyd, McGinnis, Middleton, Moore, Schoenhals, Sebaly, Stroud, Swickard; Associate Professors Bladt, Bosco, Burns, Cain, Chapel, Dickie, Fisk, Harring, Heger, Heinig, Hessler, Inselberg, Miller, Mortimore, Oswald, Smidchens, C. Smith, Sorenson, Taylor; Assistant Professors Armstrong, Borr, Bourziel, Brail, Brashear, Brenton, Cowden, Crowell, Dube, Fenton, Hagberg, Kilty, King, Sendo, D. Smith, Vander Meulen, Watson

CORE COURSES

Each graduate student in Education, regardless of specialization, is expected to show competence in at least three professional areas: research, curriculum, and foundations. These are considered minimal requirements for career positions as teachers, administrators, counseling personnel, or curriculum specialists. Such competence will normally be provided through 9 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.
College of Education

Open to Graduates 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, 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.

CURRICULUM AND INSTRUCTION

Open to Graduates and Upperclassmen

502 Curriculum Workshop 2-4 hrs.

Opportunity is provided for teachers, supervisors and administrators in selected school systems to develop programs of curriculum improvement. A wide variety of resources is used for instructional purposes, including specialists, library and laboratory facilities, field trips, and audio-visual materials.

506 Adult Education 2 hrs.

This course includes such topics as organizing and financing formal public school adult education programs, promoting informal adult education programs, leadership training, program planning, and adult education group techniques. Students will be permitted to select special areas of interest for research and study.

507 Teaching of Social Studies in the Elementary Schools 2 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 the field. Planning social studies experiences and ways of working with children in a classroom setting will be emphasized.
508 Parent Education

Places major emphasis on home problems which have educational implications for the child. Parent-teacher relationships, council programs and cooperative efforts for improvement of education in home and in school are studied.

510 The Elementary Curriculum

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

The course emphasizes the application of reading theory in the teaching of reading skills to elementary and secondary students. An intensive study of the theory and practice of individualized reading, language experience approaches, and basal reading materials will be made. The course will focus on the actual use of materials with pupils to provide practical experiences in teaching on an individual and small group basis. The efficacy of reading procedures will be studied through actual use with pupils. Prerequisites: TEED 312 or 322, and permission of the instructor.

514 Nursery-Kindergarten Education

This course will acquaint the students with the history and present-day status of nursery school and kindergarten education. Research will be utilized as a basis for determining the organization, equipment, curriculum and teaching procedures recommended for this age group.

525 Rural Life

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.

535 Introduction to Teaching the Disadvantaged

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

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

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 Fundamentals of Audiovisual Media

A survey of audiovisual media as effective means for achieving educational objectives. Emphasizes selection and classroom use of both commercially available and simple, locally produced instructional materials. Students preview and evaluate films, filmstrips, recordings, etc. and are expected to show proficiency in the operation of projectors, tape recorders and other equipment during correlated laboratory sessions which require several hours outside of class during the semester. In addition to text material, students must provide supplies averaging about $5.00 per student. Limited to 30 students.

549 Basic Production of Audiovisual Materials

A laboratory course in preparation and effective use of teacher-made visual materials. Covers basic processes of mounting, laminating and reproducing pictures; designing and creating posters and displays; design and reproduction of transparencies for overhead projection, and fundamentals of photography. In addition to text materials, students must provide supplies averaging about $15.00 per student and must have the use of a simple camera. Limited to 15 students. Prerequisite: TEED 548 taken previously or concurrently.

550 Photography Workshop

A laboratory course in visual communication. May be repeated up to a total of six credits. Limited to 15 students. Each student must have the use of appropriate equipment and should expect to spend $25 or more for supplies.

552 Comparative Education

This course is intended to provide students with an introduction to the field of comparative/cross-cultural education. The educational philosophy and goals, curricula, administrative structure, educational technology, financing and methods of instruction characteristic of selected European countries and examined and compared to parallel features of the American educational system.

555 Alcohol Education

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 program for teaching the disadvantaged. Designed to develop awareness of family situations, community conditions, behavior, value systems, and characteristics of the disadvantaged, as well as to develop positive attitudes toward these children and their problems. Consists of readings, lecture-discussions, and field experiences with the disadvantaged, including home visits, visits to social and governmental agencies, and school experiences including supervised teaching. Generous use is made of consultants from all agencies dealing with the problems of the disadvantaged.

586 Clinical Studies in Reading

This course is intended to provide the basic information needed in the examination of persons with reading disorders. Interviewing techniques and examination procedures will be the basic content of the course. Emphasis will be placed on the physical, psychological and sociological factors affecting reading performance.
587 Educational Therapy in Reading  
2 hrs.

The psychological, sociological and physiological factors affecting children's reading ability, together with laboratory application of such knowledge in the prevention, diagnosis and treatment of reading problems.

588 Evaluation in Education  
2 hrs.

Designed to develop skills, techniques, attitudes and understandings involved in the measurement and evaluation of individual learning and development as well as in the appraisal of the total school program. Emphasis is placed on the construction, use and interpretation of formal and informal evaluation devices, and upon the development of a philosophy of evaluation as an integral part of learning.

597 Reading and Related Language Experiences  
2 hrs.

A study of the current research in the many aspects of language which are involved in the process of effective reading.

598 Selected Reading in Education  
1-4 hrs.

Designed for highly qualified students who wish to study in depth some aspect of their field of specialization under a member of the departmental staff. Pre-requisite: Written consent of departmental adviser and instructor.

Open to Graduates Only

608 Interdisciplinary Seminar  
3 hrs.

This seminar is taught by a team of faculty members chosen from such areas as sociology, economics, psychology, philosophy and education. It is designed to provide breadth and depth in understanding. May be taken more than once.

610 Guiding Child Development in the Elementary School  
2 hrs.

Designed to help nursery, kindergarten and elementary school teachers gain an understanding of the manner in which skills, information, attitudes and behavior patterns are acquired and modified. The contributions of each curricular area, such as: language, arts, arithmetic, science, social studies, health, etc., are stressed with emphasis on suitability of experience for different stages of growth, instructional practices and appropriate procedures of evaluation.

615 Seminar in the Teaching of Reading  
2 hrs.

Designed to acquaint teachers, reading specialists and administrators with the current literature, research, methods and materials used in teaching children how to read. Special emphasis is placed on reading in relation to other aspects of language and on reading in the content fields. Prerequisite: TEED 312 or equivalent.

621 The Secondary School Curriculum  
2 hrs.

Covers modern practices and recent emphasis and trends in subject areas of the secondary school curriculum.

622 Junior High School Curriculum and Instruction  
3 hrs.

A detailed study of the junior high school and middle school including: development and purposes; psychological and philosophical foundations; curriculum patterns; student activities programs; and administrative, guidance, and evaluation procedures. Special attention is given to the objectives and content of general
641 Development and Management of Instructional Systems 3 hrs.

Applied basic concepts of communications research to the selection, utilization, and evaluation of instructional media and strategies to meet specified educational objectives. Emphasizes the integration of appropriate media into instructional systems and the operational evaluation of such systems within various learning environments. Students are expected to preview and evaluate materials outside of class time. Prerequisite: TEED 548 or equivalent.

642 Photographic Communication 3 hrs.

Explores uses of photography in the communication of ideas. Considers techniques of composition, lighting, equipment operation and basic photographic processes as means toward achieving an effective visual statement. Following preliminary assignments, students plan and produce a picture story or photo essay suitable for publication and a set of color slides or a filmstrip accompanied by recorded narration or audio effects. Considerable laboratory time is required outside of class. In addition to text materials, students must provide supplies averaging about $25.00 per student and each student must have the use of a camera with adjustable focus, aperture and shutter speeds. Limited to 15 students. Prerequisites: TEED 548 and 549, or equivalent experience.

643 Practicum in Clinical Studies in Reading 2 to 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: Education 586 and 587.

645 Advanced Production of Audiovisual Materials 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 15 students. Prerequisites: TEED 548, 549 and 642, or permission of instructor.

646 Studies in Educational Technology 1-3 hrs.

Explores theory and innovative developments in educational technology and suggests practical instructional applications. Such topics as the following will 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. Limited to 20 students. Prerequisite: TEED 548 or permission of instructor.

647 Organization and Administration of Audiovisual Programs 4 hrs.

Considers audiovisual aspects of a unified instructional media program, including allocation and management of space, time, budget and personnel; selecting, organizing, distributing and maintaining materials and equipment; providing
in-service education in audiovisual methods for teachers and interpreting the media program to administrators, staff, students, and the community. Prerequisite: TEED 548 or equivalent.

648 Instructional Media Seminar 3 hrs.
An analysis of applied communication. Emphasizes findings of audiovisual research as applied to message design and the structuring of learning systems. Relates communications theory to the technological solution of practical instructional and logistical problems of education. Limited to 15 students. Prerequisites: TEED 548, 549 and 647, or equivalent.

649 Problems of College and Adult Reading 2 hrs.
An advanced laboratory course covering philosophy, principles, and practices of a developmental program in reading for college students and adults. Lectures, discussions, and demonstrations will center around teaching techniques in common practice.

650 The Characteristics of the College Student 2 hrs.
This course is intended for students who are preparing to teach at the senior college or the community college level. Its focal point is an understanding of the capabilities, behaviors, attitudes and motivations of the college student. Among the topics to be considered will be academic adjustment, separation from home and family, use or abuse of newly-acquired autonomy, economic stability, campus social life and interpersonal relations as they affect academic achievement.

651 Philosophy of Education 2 hrs.
For graduate students and teachers of experience. Analyzes basic ideas, concepts and value-systems affecting educational practices; stresses a comparison of philosophical schools, historical and contemporary.

653 Practicum in Reading Therapy 2 to 4 hrs.
An instructional internship for working with individual pupils who have problems in reading and related areas. The course provides, through the service of the Reading Center and Clinic, supervised therapy experiences with a variety of reading problems. Emphasis will be placed upon the study, application and evaluation of therapeutic procedures. Prerequisites: TEED 586 and 587.

654 Practicum in Reading Supervision 2 to 4 hrs.
Principles and practices of organization and administration of reading programs for elementary, secondary, college, and adult students. Deals with the role of the reading consultant and the problems associated with providing effective reading instruction. Includes participation in classrooms and conferences with teachers concerning instructional goals, materials and procedural approaches.

655 Seminar in Learning 2 or 3 hrs.
Open to selected graduate students with the consent of the instructor. Analyzes research in the field of learning, including effective factors, input and retention of information, and concept formation.

656 Organization and Administration of Reading Programs 2 hrs.
A study of the process and procedures which may be employed in organizing and administering reading programs at the elementary and secondary levels. Empha-
sis 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

This seminar deals with problems inherent in educational programs for under-

privileged youth. Emphasis is placed on developing a depth of understanding and

resolutions to such problems as: curriculum development, methodology, school

organizational innovations and audiovisual adaptation of existing materials to the

teaching of disadvantaged children. Students are encouraged to enroll for the semi-
nar as a culminating activity for the degree, and to bring to the meetings actual

problems faced in their own teaching situations. Prerequisite: At least 21 hrs.

completed in MA program for teaching the disadvantaged.

669 Supervision of Student Teaching

Deals with the significance of student teaching in the pre-service education of
teachers, the role of the supervising teachers, and the problems associated with

providing high quality student teaching experiences. Many types of student teaching

programs and their components of planning, evaluation, supervisory conferences

and follow-up are analyzed. Prerequisite: Teaching experience or consent of in-

structor.

687 Improvement of Reading in Secondary Schools

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

Studies the historical development of the junior and community college move-

ment; the function of the community college in the total educational program; the
divergent aims and curricular requirements of pre-professional, academic and

t raining courses; the guidance and counseling function; community services

programs; and methods and materials of instruction at the college level.
College of Fine Arts

ROBERT W. HOLMES,
Dean

Graduate Offerings:
Art
Music
College of Fine Arts

Art

Meyer, Head; Professors Hefner, Robbert, Smutz; Associate Professors Argyropoulos, Deluca, Engstrom, Frattalone, Hansen, Harrison, Henderson, Johnston, Lowder, Methaneany, Moulton, Rizzolo; Assistant Professors Carney, Dull, Dumlaa, Gammon, Keaveny, King, Mergen, Mohr, Rhodes

510 Advanced Drawing 3 hrs.
Drawing as the study of form and as a conclusive aesthetic statement. Prerequisite: 410 or equivalent experience. Repeatable for credit.

520 Independent Study in Art History 2-3 hrs.
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: Art 220, 221, and a 500-level course in the area of interest; permission of instructor. Repeatable for credit.

521 Topics in Art History: Variable Topics 3 hrs.
Investigation of changing topics in art history in class or seminar sessions by advanced students. Course title varies from term to term. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students. Repeatable for credit under a different title.

525 Seminar in Art 2 hrs.
Investigation and discussion in contemporary philosophies of art and their relationship to each student's work.

530 Advanced Ceramics 3 hrs.
Advanced work in Ceramics including glaze calculations and experimentation. Prerequisite: Art 430 or equivalent experience. Repeatable for credit.

531 Sculpture 3 hrs.
Advanced work in sculpture. Continuation of Art 431. Emphasis on bronze and aluminum casting and related techniques. Prerequisites: Art 310, 431 or equivalent experience. Repeatable for credit.

534 Textiles 3 hrs.
Continuation of Art 434 with advanced work in textile design. Prerequisites: Art 234, 434 or equivalent experience. Repeatable for credit.

535 Multi-media Art 3 hrs.
Various forms of art that deviate from the conventional media, such as light, kinetic, and performance art. Prerequisite: Art 435 or permission of instructor. Repeatable for credit.

538 Jewelry 3 hrs.
Continuation of Art 438 with advanced work in jewelry processes. Prerequisite: Art 438 or equivalent experience. Repeatable for credit.

539 Metalsmithing 3 hrs.
This course provides an open opportunity to build metal objects of larger than
jewelry scale. It offers technical instruction in moving, shaping, and forming non-ferrous metals by hammering. (Sterling, brass, copper, bronze, aluminum, pewter.) Prerequisite: Art 439 or equivalent experience.

540 Painting IV 3 hrs.
Advanced painting. Prerequisite: Art 410 (or concurrently), 440 or equivalent experience. Repeatable for credit.

541 Printmaking 3 hrs.
A continuation of Art 441. 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.
The fundamentals and procedures of graphic design for sequential, three-dimensional, and serial forms. Problems in design continuity and coordination are explored through editorial, corporate identity, campaign, product, and packaging design. Incorporates investigation of graphic processes and papers. Prerequisite: Art 445 or equivalent experience. Repeatable for credit.

550 Preparation for Art Teaching (Elementary) 2 hrs.
Designed to prepare elementary art education majors to realistically meet such responsibilities as working with elementary classroom teachers, selecting, organizing and teaching art activities at each stage of development. Must precede student teaching. Prerequisite: Art 352 (or concurrently), or equivalent experience.

551 Preparation for Art Teaching (Secondary) 2 hrs.
Designed to prepare art education majors to understand the problems of the secondary art program. Organizing and teaching, budgeting, and other problems of secondary art education programs. Must precede student teaching. Prerequisite: Art 353 (or concurrently), or equivalent experience.

581 History of Ancient Art 3 hrs.
Selected topics from the art and architecture of ancient Egypt, the ancient Near East, the Aegean proto-Greek, Classical and Hellenistic Greece, Etruria and Rome to the Early Christian period. Prerequisite: Art 220 for Art majors and minors; none for other students.

583 History of Medieval Art 3 hrs.
Discussion of art and architecture from the decline of the Roman Empire through the Gothic Period (3rd-13th cent.). Prerequisites: Art 220 and 221 for Art majors and minors; none for other students.

585 History of Renaissance Art 3 hrs.
The development of art through the early Renaissance to the late Renaissance and Mannerism. Some of the major artists discussed are: Giotto, Donatello, da
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Vinci, Michelangelo, Titian, Van Eyck, Breughel and Dürer. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students.

586 History of Baroque Art 3 hrs.
Art of the late sixteenth, seventeenth and early eighteenth centuries. Major artists and architects discussed are: Caravaggio, the Carracci, Rembrandt, Rubens, Poussin, Velasquez, Bernini, Borromini and Neumann. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students.

588 History of 19th Century Art 3 hrs.
Major developments, such as Neo-Classicism, Romanticism, Realism, Impressionism, and Post-Impressionism, are discussed. Key figures whose works lie at the roots of modern art are considered in relationship to their times. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students.

589 History of 20th Century Art 3 hrs.
Major developments, including Fauvism, Cubism, Non-Objective art, Expressionism, Surrealism, Abstract Expressionism, and recent art movements, are discussed. Emphasis is placed upon the roots of contemporary trends and the contributions of individuals to new modes of presentation. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students.

590 History of Prints 3 hrs.
Major developments in printmaking, including origins of woodcut and engraving. Renaissance and baroque master etchers and engravers (Dürer and Rembrandt, etc.). Lithography in the nineteenth century (Delacroix, Daumier, Toulouse-Lautrec). Twentieth century printmaking. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students.

593 History of American Art 3 hrs.
Art in the United States from the Colonial Period to the present. Topics discussed are: Colonial portraiture and Copley; the evolution of 19th and 20th century painting and sculpture, with emphasis on the work of Stuart, Cole, Bingham, Homer, Eakins, Ryder, Sullivan, Wright, Marin, Pollock and Smith. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students.

594 History of Afro-American Art 3 hrs.
Painting and sculpture in the United States by Americans of African ancestry from the Colonial period to the present. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students. Junior standing required.

596 History of Architecture 3 hrs.
A course intended as a general introduction to the historical development of Western architectural styles. Considers the changes and evolutions which architecture has undergone from the classical Greek period to the present. Prerequisites: Art 220 and 221 for Art majors and minors; none for other students.

597 History of Modern Architecture 3 hrs.
Historical approach to modern architecture: Begins c. 1750 and considers the changes which take place in Western technology and architectural practices which
create modern architecture. Emphasis on 19th and 20th century architecture. Pre-requisites: Art 220 and 221 for Art majors and minors; none for other students.

Open to Graduates Only

610 Advanced Drawing 1-6 hrs.
Graduate level work in drawing. Prerequisite: Art 510. Repeatable for credit.

613 Graduating Presentation 2 hrs.
Preparation and presentation of graduating exhibition, portfolio, and oral examination or written thesis, with the assistance of the student’s major adviser. Evaluated by a departmental reviewing committee. Prerequisite: Last year of graduate study.

620 Independent Study in Art History 2-3 hrs.
Problems in art history from ancient times to the present selected by the individual student in consultation with the instructor. Prerequisites: Art 220, 221 and a 500-level course in the area of interest; permission of instructor. Repeatable for credit.

625 Seminar in Art 2 hrs.
Investigation and discussion of contemporary philosophies of art and their relationship to each student’s work.

630 Advanced Ceramics 1-6 hrs.
Graduate level work in ceramics. Prerequisite: Art 530. Repeatable for credit.

631 Advanced Sculpture 1-6 hrs.
Graduate level work in sculpture. Prerequisite: Art 531. Repeatable for credit.

634 Advanced Textile Design 1-6 hrs.
Graduate level work in textile design. Prerequisite: Art 534. Repeatable for credit.

635 Advanced Multi-Media Art 1-6 hrs.
Graduate level work in Multi-Media Art. Prerequisite: Art 535. Repeatable for credit.

638 Advanced Jewelry 1-6 hrs.
Graduate level work in jewelry. Prerequisite: Art 538. Repeatable for credit.

640 Advanced Painting 1-6 hrs.
Graduate level work in painting. Prerequisite: Art 540. Repeatable for credit.

641 Advanced Printmaking 1-6 hrs.
Graduate level work in printmaking. Prerequisite: Art 541. Repeatable for credit.
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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.

650 Workshop in Art for Elementary Teachers 2 hrs.
This course is planned for the elementary classroom teacher who has little or no training in art education. It includes an introduction to the philosophy of art education, and an examination of the stages of development of the child in creative and mental growth, as well as activities designed for each level.

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 interests of the student enrolled. It will examine particular issues pertinent to the teaching of art in the elementary school.

657 Seminar in Secondary Art Education 1 hr.
A seminar oriented to the explicit needs and interests of the students enrolled. It will examine particular issues pertinent to the teaching of art in the secondary school.

658 Art Education Research 1-6 hrs.
To examine historical and contemporary philosophies in art education in order to familiarize the student with current methods of research in the field. Whenever appropriate, opportunity will be given students to do pilot research in an area of their own needs and interests. Repeatable for credit.

659 Advanced Art Education 3 hrs.
An examination of some of the unique aspects of teaching art in the public schools. New materials, special and general materials sources, bibliographic resources and related references are gathered and explored. Field trips will be developed to expose students to potential community resources in art, and discussions will examine current literature, trends and techniques in art education. (A lecture-lab)

660 Related Arts Methods 3 hrs.
A course that explores the art teacher's role in contemporary and experimental procedures in the teaching of the arts in the public schools. Some factors to be examined are: team teaching, team learning and planning. Audio-visual/video support, the individual school situation and its personnel.
Music

Fink, Chairman; Professors E. Adams, Carter, Faustman, Holmes, Kyser, Matthews, Meretta, Sanders, Stulberg; Associate Professors Appel, Balkin, Bjerregaard, Bullock, Butler, Hahnenberg, Hardie, Humiston, Osborne, Rappoport, Ryan, Work, Zastrow; Assistant Professors Allgood, Boucher, Edmonson, Ricci, Sheldon, Smith, Whaley, Zupko

Open to Graduates and Upperclassmen

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.

530 Advanced Choral Conducting
2 hrs.
Supervised experience in conducting vocal ensembles. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Music 330.

531 Advanced Instrumental Conducting
2 hrs.
Supervised experience in conducting instrumental groups. The student may be called upon to prepare an ensemble for public performance. Prerequisite: Music 331.

540 Elementary School Music
2 hrs.
Emphasizes the place of music in the curriculum and the use of music in the day-to-day activities in the classroom. The fundamental musical skills are developed in order to assist the teacher to achieve these objectives.

541 Music Supervision and Consultation
2 hrs.
A study of the structuring and implementation of a music education program in the schools, in terms of three organizational relationships: the music administrator or supervisor, the scheduled music teacher, and the unscheduled music consultant. Relation of music specialist to classroom teacher.

542 Studies in Music Education
2 hrs.
Topic to be announced. Selection will be made from the following or similar topics: Music in the Humanities, Evaluation of Music Education Materials, and Curriculum Planning for Innovation in Music Education. This course may be repeated to an accumulation of not more than four credits.

543 Psychology of Music Education
2 hrs.
Personal and social needs, motives, and goals in relation to music in education. The function of musical achievement and aptitude tests in music education. Psychological aspects of behavior pattern in musical organizations. Physical, social, and psychological factors involved in developmental music program.

544 Analysis and Evaluation of Music Education Materials
2 hrs.
A study of the theoretical bases for, and practice in, analyzing and evaluating music for use in music education programs.
562 Advanced Composition 2 hrs.
A study of twentieth century techniques in composition with original work in vocal and instrumental forms. Prerequisite: Music 460.

563 Advanced Composition 2 hrs.
A continuation of Music 562.

570 Introduction to Musicology 3 hrs.
History, purposes, scope of musicology: leading historians, past and present; modern methods of research, with special emphasis on primary sources and bibliography of the field.

571 Introduction to Musicology 3 hrs.
A continuation of Music 570.

572 Baroque Music (1600–1750) 2 hrs.
A survey of the choral and instrumental music of the Baroque masters such as J. S. Bach and G. F. Handel. Special attention to the development of style from monody through harmonic polyphony. Prerequisites: Music 370 and 371.

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: Music 370 and 371.

574 Romantic Music (1800–1910) 2 hrs.
Music of the important composers of the period beginning with Beethoven, along with the historical, cultural, and political background of the era. Special attention is given to the development of Nationalism. Prerequisites: Music 370 and 371.

575 Musicology and Research 3 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 3 hrs.
A continuation of Music 575.

577 Symphonic Literature 2 hrs.
A survey of music written for symphony orchestra during the Classic and Romantic periods.

578 Chamber Music Literature 2 hrs.
A survey of chamber music literature of the Classic and Romantic periods.

579 Operatic Literature 2 hrs.
A survey of opera from 1600 to the present.
580 Music Therapy Internship 2 hrs.
Six months clinical training through resident internship in an approved neuropsychiatric hospital with an established music program. Prerequisite: Completion of music therapy major and staff approval.

590 Studies in Pedagogy 1-3 hrs.
Topics to be announced. Selection will be made from the following: Piano Pedagogy, Vocal Pedagogy, String Pedagogy, Brass Pedagogy, Woodwind Pedagogy, Pedagogy of Teaching Theory, or similar topics. May be repeated for credit.

598 Readings in Music 2 hrs.
Graduate students may enroll in this course after consultation with the graduate adviser.

Open to Graduates 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 Music 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 eras. 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 Music 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 Music 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.

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.
The Graduate College

GEORGE G. MALLINSON,
Dean

RICHARD T. BURKE,
Associate Dean

SID DYKSTRA,
Associate Dean

Graduate Offerings:
Graduate Studies
Higher Education
Librarianship
The Graduate College

Graduate Studies

Open to Graduates Only

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 units of from two to six hours. The election should not be made in more than two units and must be made within a calendar year. Application forms must be submitted prior to the election of the thesis. The "Specifications for Masters' Theses, Specialist Projects, and Doctors' Dissertations" is available in the bookstore.

710 Independent Research

Designed for highly qualified advanced graduate students, or small groups, who wish to pursue individual studies or projects under the direction of a member of the graduate faculty. May be elected in any department or division with permission of the Graduate College, the student's graduate adviser and the faculty member under whom the student desires to work. Applications must be submitted prior to the election of the course.

712 Professional Field Experience

Designed for superior graduate students who wish to pursue internships or apprenticeships in off-campus activities in industries or institutions. May be elected in any department or division with permission of the student's graduate adviser, a faculty sponsor and The Graduate College. Prerequisite: An outline of the purposes of the student's internship or apprenticeship. Application forms, guidelines, and information about established programs may be obtained at The Graduate Office. Applications must be submitted prior to the election of the course. Graded on the credit-no credit system.

715 Seminar in College Teaching

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.

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. Application forms must be submitted prior to election of the project.

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.

730 Doctoral Dissertation 15 hrs.

The doctoral dissertation must reflect a creative effort on the part of the student in using the skills of inquiry appropriate for his discipline. The acceptance of the dissertation requires unanimous approval of the dissertation review committee and acceptance by The Graduate College. The original copy after acceptance will be used for microfilming by University Microfilm, Inc. at the student's expense. The student will retain the rights for further publication. The "Specifications for Masters' Theses, Specialist Projects, and Doctors' Dissertations" is available in the bookstore. Application forms must be submitted prior to election of the dissertation. Graded on the credit-no credit system.

735 Graduate Research 2-10 hrs.

Units offering doctoral programs may use this number to designate research projects for their doctoral students. Such projects may be taken more than once by the student. Permission of instructor on "C" card is required.

Higher Education

In various University graduate curricula there are several courses offered with content directed primarily to those individuals preparing themselves for teaching, administration, or service areas in Higher Education. These courses are listed below. For further information contact the Chairman of the Committee on Higher Education, Dr. L. Dale Faunce, Professor, Counseling and Personnel.

Business Education and Administrative Services

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>600</td>
<td>Seminar in Business Education and Administrative Services</td>
<td>3-4 hrs.</td>
</tr>
<tr>
<td>687</td>
<td>Post-Secondary Business Education</td>
<td>2 hrs.</td>
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</tbody>
</table>

Counseling and Personnel

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>630</td>
<td>Studies in Higher Education</td>
<td>2-6 hrs.</td>
</tr>
<tr>
<td>682</td>
<td>Research in Counseling and Personnel Services</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>686</td>
<td>Topical Seminar in Counseling and Personnel</td>
<td>2-4 hrs.</td>
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<tr>
<td>695</td>
<td>Student Personnel Services in Higher Education</td>
<td>2 hrs.</td>
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</table>

Educational Leadership

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>660</td>
<td>Administration and Supervision</td>
<td>2-4 hrs.</td>
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<tr>
<td>662</td>
<td>Concept Formation</td>
<td>2-4 hrs.</td>
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</tbody>
</table>

Graduate College

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>715</td>
<td>Seminar in College Teaching</td>
<td>2 or 4 hrs.</td>
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</tbody>
</table>

Sociology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>630</td>
<td>College Teaching Practicum in Sociology</td>
<td>3 hrs.</td>
</tr>
<tr>
<td>631</td>
<td>Supervised College Teaching in Sociology</td>
<td>1 hr.</td>
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</tbody>
</table>
Teacher Education

650 The Characteristics of the College Student 2 hrs.
690 The Community College 2 hrs.

Librarianship

Lowrie, Director; Professor Grotzinger; Associate Professors Comaromi, McKinney; Assistant Professors Baechtold, Berneis, Carroll, Cohen, Edwards, Gillham, Miller, Smith

Open to Graduates and Upperclassmen

506 Introduction to Computers 1 hr.
Flow charts and computer programs will be prepared in the BASIC LANGUAGE to be run on the digital computer. Prerequisite: 1 1/2 yrs. high school algebra or Math 100.

510 Building Library Collections 3 hrs.

512 Reference Service 3 hrs.
Study and evaluation of basic reference and bibliographic sources. Critical examination of the publications of governmental agencies, societies and institutions especially as reference sources. Attention given to organization and method of reference services in the library.

516 Elementary School Library Materials 3 hrs.
Problems in the evaluation, selection and utilization of print and non-print materials with special emphasis on the content areas in the elementary school curriculum. Prerequisite: English 282. Open to students outside the department.

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 department.

546 Storytelling 3 hrs.
Underlying principles of the art of storytelling as a means of developing
appreciation of literature and stimulating an interest in reading. Includes content and sources of materials, techniques and practice in telling stories before groups of children and planning the story hour program. Open to students outside the department.

598 Readings in Librarianship  1-3 hrs.

Offers a program for the advanced student for independent study in his special area of interest; arranged in consultation with a graduate adviser. Prerequisite: Written permission of instructor.

Open to Graduates Only

600 Foundations of Librarianship  3 hrs.

Given the student professional background through study of the historical development of the library, European and American; the function of the modern library and its contributions to society; current trends in librarianship and current library literature.

602 History of Books and Printing  3 hrs.

Study of the development of the book from the earliest period to modern times. Considers the appraisal of the physical book as well as its relationship to social and cultural developments. Includes history of the alphabet, early writing materials, manuscripts, inventions and spread of printing and evolution of book production. Open to students outside the department.

607 Library Experience  2-3 hrs.

An introduction to library activities and services through assignment to a selected library. For each credit hour received, 35 hours of supervised library experience are required. May be taken only with permission of the student's graduate adviser, and when an appropriate situation is available. Graded on the credit-no credit system.

612 Subject Bibliography: The Humanities and Social Sciences  3 hrs.

A study and evaluation of the bibliographical sources in the social sciences and the humanities. Each student will be expected to compile a bibliography on a topic of his choice. Prerequisite: An introductory course in Reference. Librarianship 612 need not precede 613.

613 Subject Bibliography: The Sciences  3 hrs.

Major emphasis on the study and evaluation of the bibliographical and reference sources in the science including the technical fields. Includes survey of the factors relating to scientific reference service and the literature of the applied and basic sciences.

614 Government Publications  3 hrs.

Study of city, state and federal documents and those of selected international agencies such as the United Nations. Problems of acquisition, organization and use of such collections in various types of libraries. Prerequisite: Librarianship 512 or equivalent.

616 Curriculum Enrichment Materials  3 hrs.

Problems in the selection, evaluation, promotion, and utilization of print and
non-print materials with emphasis on the content areas in the secondary school curriculum. Students are expected to complete a term project. Open to students outside the department.

617 Reading Guidance for Children 3 hrs.
A study of the development of children’s literature from approximately the 8th century in England and the Colonial period in the United States to the present time. Includes principles and techniques in guidance of children’s reading interests and evaluation of current literature. Open to students outside the department.

618 Libraries and Multi-Sensory Communication Media 3 hrs.
A study of modern multi-sensory aids employed in communicating ideas and considered in relation to their effect on libraries. Emphasis will be placed on program development through effective use of multi-media materials. Mass communications media and new instructional methods for fulfilling the objectives of public, school and college libraries will be examined.

620 Public Library Service 3 hrs.
Origin and development, purposes and functions of the tax-supported public library (county and regional) in a democracy. Relation to other educational units in the community; distinctive problems and practices in public library organization and administration. Prerequisite: Librarianship 622 or equivalent.

622 Library Administration and Management 4 hrs.
An inter-disciplinary approach to administrative theory and principles of management. General sessions plus seminars will provide relevant application to public, academic, school and special libraries.

623 College and University Library Service 3 hrs.
College and university library organization and administration, and the place of the library in academic institutions; effectiveness of library procedures; problems of acquisition, finance, buildings, equipment and the handling of special materials. Prerequisite: Librarianship 622.

624 Library Service to Children and Youth 3 hrs.
The function and administration of public library service for children and young adults. Emphasis on coordination with school libraries and other community agencies; programs development in children’s and youth adult departments.

625 School Library Administration 3 hrs.
Consideration of the library as the media center of the school at the elementary and secondary levels. Emphasis on the program of services to faculty and students, including the administrative problems of budget planning, personnel requirements, space and equipment needs and library instruction.

627 Administration of the School Media Center 3 hrs.
A seminar approach to contemporary issues including staff utilization, in-service programs for teachers, current trends in education and school media systems development. Prerequisite: Librarianship 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 and economics of technical processing departments. Prerequisite: Librarianship 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: Librarianship 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. Prerequisite: Librarianship 630 or 631.

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.

Analyses theories of bibliographic organization and control: surveys and evaluates methods, conventional and mechanical, for retrieval; considers trends and developments relating to library services. Prerequisites: Librarianship 530 and 622, or equivalent.

636 Introduction to Abstracting and Indexing 3 hrs.

Theory and structure of abstracts and indexes with attention to the role of classification, thesaurus indexing and problems of evaluation. Experience in preparing various forms of abstracts, indexing from source documents and developing relevant procedures.

644 Adult Reading Interests 3 hrs.

Evaluation of findings of reading studies and their implications for library service; an understanding of reading habits, abilities and needs of adults. Study of
the library as an adult education agency with an introduction to leadership training and adult education techniques.

645 Library Service to the Disadvantaged Child 3 hrs.

The study of socially and educationally deprived children in the urban, rural, 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 for 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.