

# UMSL

University of Missouri-  
Saint Louis

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Undergraduate/  
Graduate Bulletin

May 31,  
1976



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Saint Louis

Undergraduate/Graduate Bulletin

## Preface

### UMSL

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This bulletin includes a description of undergraduate and graduate courses and programs for the 1976-77 academic year at the University of Missouri-St. Louis. All statements in this publication concerning regulations, fees, curricula, or other matters are subject to change without notice. They are not to be regarded as offers to contract.

The policies of the University of Missouri-St. Louis comply with the provisions under Title VI of the Civil Rights Act of 1964. No person in the United States shall, on the grounds of race, color, or national origin, be denied the benefits of, or be subjected to discrimination under any program or activity of the university.

Racial and sexual data is requested by the university in order to determine the effect of efforts related to the provision of equal educational opportunity. Completion of this information is optional.

For the benefit of prospective students, academic departments generally maintain current employment information including average starting salary, forecast of job opportunities, number of students being graduated, and number employed. Contact your major department for the latest information available.

While students should study current employment data, these points should also be considered: 1) Employment conditions are subject to sudden change, and may change considerably over a four-year period. 2) A student who excels is most likely to find employment. 3) A degree from a quality institution generally provides a competitive edge in the job market. 4) A degree offers more than a job opportunity.

Address inquiries regarding admission to all divisions of the University of Missouri-St. Louis to the Director of Admissions, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 63121.

For information concerning the University of Missouri-Columbia, the University of Missouri-Rolla, or the University of Missouri-Kansas City, write directly to the Director of Admissions at the campus concerned.

### Credits

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In the decade of the 1960s, a movement began across the country that marked the most significant change in higher education in the 20th century. That movement was toward the creation of public universities tailored to the needs of the nation's urban citizens.

The University of Missouri-St. Louis is a product of that movement. UMSL, the fourth campus of the University of Missouri, was established in 1963 as a bold experiment in urban higher education. In a period of fifteen years, the notion of a major public institution serving the St. Louis area has evolved from a dream to a solid reality that today exceeds the expectations of those who created it.

Since the doors of the old Administration Building were opened more than a dozen years ago, UMSL has grown to be the second largest university campus in Missouri and the largest in St. Louis. On what was once the location of an exclusive country club is now a bustling campus of some 13,000 students, faculty, and staff committed to the future of the St. Louis area through teaching, research, service, and extension.

From a faculty of 30 has grown one of 400; from a student body of 600 has grown a group of 12,000. The numbers have changed, but the spirit has not. Still paramount in the minds of faculty and students is the preparation of new talent to contribute to the social, intellectual, and economic health of Missouri's largest metropolitan area.

In physical stature, UMSL has risen from a single country club building converted to classrooms and offices to a large modern campus of twelve buildings with complete services for all the activities that contribute to a full university experience.

Academic offerings have grown from a sparse number to a list of twenty-six undergraduate degrees, twelve master's degree programs, and three doctoral programs. Programs range from a bachelor's degree in philosophy to a master's in public policy administration to a Ph.D. in chemistry. Most programs combine traditional liberal education with the urban thrust necessary for today's students.





The academic structure is divided into the College of Arts and Sciences, School of Business Administration, School of Education, Graduate School, and Evening College.

The College of Arts and Sciences, the largest of the divisions, includes fourteen academic departments that combine the best features of two different educational worlds. One world provides students, through general educational offerings, opportunities to acquire a breadth of knowledge and a grounding in the basic skills of intellectual inquiry. The other world supplies the basic preparation for students' vocational lives by providing learning experiences that encourage intelligent vocational choice and allow students to prepare for careers in specialized fields of work.

The School of Business Administration strives to maintain a balance between the specialization of professional courses and the diversity of liberal arts. Besides training students as qualified professionals for the business world, the UMSL business school strives, through its bachelor's and master's programs, to expand student capacities in communication, analysis, judgment, and ability to relate to today's complex environment.

The School of Education acts on the premise that the process of developing and maintaining a quality educational setting in an urban area necessitates both advancing the field of education and meeting changing societal needs. It is committed to the university concept of quality in research, excellence in teaching, and the extension of these research and teaching capabilities through a service commitment to the community. The school meets these commitments through its undergraduate and graduate teacher education offerings and related activities both on campus and in the field.

Programs offered in the UMSL Graduate School fall into two categories: professional programs designed to develop a special competence in a particular field, and academic programs designed to develop the student's command of a range of related subjects within a field. Graduate programs are carefully structured to respond to the needs of the

metropolitan area and to provide students with the knowledge necessary to relate effectively to the complex modern world.

The Evening College was established in response to a clear need for quality education for those who cannot attend classes during the day. For those interested in traditional university study, the Evening College offers most of the same degree programs available to day students and makes sure these programs conform to the same standards and requirements as their daytime counterparts. For those seeking innovative approaches to education, the Evening College has the Bachelor of General Studies (BGS) Program, a unique concept designed for mature students who need more flexibility in reaching their educational goals. BGS students choose the courses from the UMSL curriculum which they view as important to their education, so the students' program structures vary depending on their needs. All campus services are open to Evening College students, thus ensuring that students who go to classes at night have the same opportunities for a full university experience as day students.

One of the keys to UMSL's development as a quality institution has been the careful selection of faculty over the years. UMSL has attracted a group that includes some of the top authorities in their fields. In general, faculty members are younger than their counterparts at older, established institutions. About 80 per cent hold doctoral degrees, a figure that far exceeds the national average. And all of them feel the strong commitment that comes from teaching and researching at a university whose performance may affect the future of a major metropolitan area.

Academic life is the most important part of any university. But at UMSL, as at any modern university, the total university experience is made up of much more than classes, labs, books, and hard work.

Student activities are available for just about every interest group imaginable, from the UMSL *Current* student newspaper to political organizations to social fraternities and sororities. For student enrichment and

expression, cultural opportunities abound, from concerts to art exhibitions. Students interested in the governing of the university are eligible to serve on the University Senate, an elective body of students and faculty. For the sports-minded, the campus has a varsity athletics program with eight intercollegiate sports and a complete intramural program of popular sports for day and evening students. Annual trips to ski areas and winter resorts at special student rates present the opportunity for low-cost travel.

The result of UMSL's total university experience has been that more than 12,000 St. Louisans have earned their status as alumni of a new breed of university—the public urban university, which carries with it a large measure of higher education's hope for the future.

# **Undergraduate Studies**



This section includes admission, general education, and degree requirements and academic policies for students seeking undergraduate degrees from UMSL.

Undergraduate degree programs are offered by the College of Arts and Sciences, School of Business Administration, School of Education, and Evening College. Information on these programs can be found on the pages indicated:

**Bachelor of Arts (A.B.)**

anthropology 38  
art history 29  
biology 23  
chemistry 24  
economics 25  
English 26  
French 33  
German 33  
history 30  
mathematics 31  
music 28  
philosophy 34  
political science 36  
psychology 37  
sociology 38  
Spanish 33  
speech communication 27

**Bachelor of General Studies (B.G.S.) 54****Bachelor of Music (B.M.) 21****Bachelor of Science (B.S.)**

administration of justice 21  
business administration 45  
chemistry 24  
economics 25  
education 47  
physics 35

**Admission  
Application****Freshmen**

Selection of students for regular admission is based on both high school class rank and performance on a standardized college aptitude test. Students must also submit their high school transcripts and, where appropriate, recommendations by persons knowledgeable of their potential for success in university-level education.

**Class Rank**

A class rank at the end of six semesters should be noted on transcripts for students applying for admission during their senior high school year. If grades are not given, the principal or counselor should assign an estimated class rank.

**Aptitude Test**

One college aptitude test score is required to apply for admission as a new freshman. One of the following tests meets this requirement: American College Testing Program (ACT); Scholastic Aptitude Test (SAT); or Cooperative School and College Ability Test (SCAT) Series II, form IC (College Level) or form IIB. These test results are beneficial to both students and advisers in planning students' academic programs and in considering their educational and professional objectives. In general, the lower the class rank, the higher the test score must be to meet the admission requirements, and vice versa. Students should request that test scores be sent to the admissions office. This is normally done when students register for the test, but may be requested later on forms supplied by the testing agencies.

If students have taken two or more of these tests, or have taken one more than once, all resulting test scores should be forwarded since the admission decision is based on the highest score.

Entrance examinations should be taken at the earliest possible time during the senior year. The admissions office should have all scores before June 1.

**Transcript**

A high school transcript, certified by the proper school official, must be sent directly from the high school attended to the admissions office. The transcript should

indicate the class rank at the time of application and all courses satisfactorily completed.

It is recommended that the high school curriculum include four English units, two mathematics units excluding general mathematics, one laboratory science unit, and one social science unit. Two units in one foreign language are recommended for students planning to pursue a liberal arts degree. Any remaining units should be taken in such areas as art, music, economics, a second foreign language, two more units of the same foreign language, mathematics, and science.

#### **When To Apply**

Qualified applicants are admitted and notified by letter of their admission in the order completed applications are received. Applications are accepted after October 1 for the next fall semester on the basis of six or more high school semesters. Completed applications, including high school transcripts and test scores, should be on file by May 1 in order to guarantee that they receive full consideration. This information should be submitted no later than July 1 for the fall semester; December 1, winter semester; and May 1, summer session.

#### **Acceptance**

Upon acceptance to the fall or winter semester, students must submit satisfactory medical history reports and a final high school transcript indicating their class rank and graduation date. First-time freshmen must take placement examinations in English and mathematics. Arrangements are made with students through the admissions office after notification of admission.

#### **Advanced Standing**

UMSL grants credit hours to entering freshmen who, through performance on College Entrance Examination Board Advanced Placement Tests and faculty-administered tests, demonstrate proficiency in certain college-level courses, such as accounting, biology, chemistry, English, foreign languages, history, mathematics, political science, and physics. For further information and applications write

to College Board Placement Examinations, Box 592, Princeton, New Jersey 08540. The score reporting institution code number for UMSL is 6889. Test scores should be sent to the admissions director, and must be on file before the first day of classes.

#### **Dual High School-University Enrollment**

Superior high school students may be admitted in a special student category for the purpose of taking one or more university courses concurrently with their final year or two of high school enrollment or during the summer session prior thereto. Students must submit a regular application for admission as well as a special request which includes a high school recommendation. Students are admitted on an individual basis at each campus on the basis of academic standards that exceed those required for regular admission from high school. Admission is limited and governed by space available in prerequisites for the desired course or courses.

Individuals over age 18 who have no previous college work may earn advanced credit through the College Level Examination Program (CLEP) general examination, provided they score at or above the 50th percentile. A maximum of 28 semester hours of credit may be earned. In addition, CLEP offers subject examinations for specific credit in one area. These examinations can be taken any time provided the student has not taken a course in the test area. A score at or above the 50th percentile must be earned to receive credit. Consultation with an adviser is recommended. CLEP tests are given the third week of every month at UMSL. Contact the admissions office at 453-5451 for complete information.

#### **Credit for Military Service**

Credit may be allowed for service training programs conducted by the various Armed Forces branches. The American Council on Education recommendations in *A Guide to the Evaluation of Educational Experiences in the Armed Services* generally serve as a basis for granting such credit. To count toward a degree, the credit granted must be appropriate to the student's curriculum.

**Trial Admission**

High school graduates who do not meet the regular admission standards may be admitted on a conditional basis in the summer session. Usually enrollment is for 6 hours and if grades of C or better are earned, the student may submit an application at the end of the summer session. If space is available, the application is reviewed and the student permitted to enroll in the fall semester.

**High School Nongraduate Applicants**

Individuals may seek admission on the basis of high school equivalency earned from performance on the United States Armed Forces Institute General Educational Development (GED) tests. Admission is based on an evaluation of the educational merits of military and other experiences since leaving school, GED test scores, and performance on other aptitude tests.

**Veterans and Mature Adults**

Applicants may be admitted as special or irregular students, not degree candidates, if they are veterans of the military service or over age 21 and have not previously earned college credit, have not been in school for several years, have not earned a high school diploma, or passed the GED; or have a diploma, but do not meet regular admission requirements from high school. Admission is based on special preparation, attainment, or exceptional aptitude as judged by an evaluation of military and other experiences, test scores, and other indicators of potential success at the university. Students can become degree candidates on the basis of their performance in university course work.

**Out-of-State Residents**

Out-of-state students must be graduates of accredited high schools. Their high school class rank and aptitude test performance should indicate an appreciably higher probability of success than that applied to Missouri high school graduates. *Nonresident students must pay the nonresident tuition fees.*

**Transfer Students**

Students from other colleges and universities must submit official transcripts of high school and college work, an application for admission, and a satisfactory medical history

report. Official transcripts should be sent by each institution previously attended directly to the admissions office; hand-carried credentials are not accepted. All credentials submitted for admission become the property of the university. All application material should be submitted by July 1 for the fall semester; December 1, winter semester; and May 1, summer session.

Transfer applicants with grade point averages of 3.0 or higher, based on the university's 4-point system, may be admitted at any time. Students with grade point averages of 2.5 or higher may be accepted any time during the semester before desired admission, while students with grade point averages of 2.0 or higher may be accepted any time during the last half of the semester before desired admission. UMSL may not admit any student who is under suspension or dismissal, or whose previous record shows work of an inferior or unsatisfactory quality.

**Associate Degree Transfers from Junior Colleges**

Students admitted to the university with associate degrees oriented toward the baccalaureate degree from an accredited associate-degree granting institution and a grade point average of C or above are accepted in junior standing. However, the student must still meet the specialized lower division degree requirements and the specialized requirements of university departments or divisions. Courses completed in the associate degree program are evaluated for application to specific degree requirements by the same criteria used for transfer students from other colleges and universities, other University of Missouri campuses, and other divisions on the same university campus.

Transcripts for students transferring to the university without an associate degree oriented toward a baccalaureate degree are evaluated on a course-by-course basis.

**Advanced Standing**

Advanced standing in the form of credit hours may be allowed for work satisfactorily completed in another college or university of recognized standing as long as the work satisfies the requirements of the university

division in which the student registers. Courses with grades of D are not accepted. Advanced standing for work of the senior year is not granted. To receive recognition, claims for advanced standing must be made by students within one semester after entrance.

Junior college students shall not receive credit for more than 16 hours in one semester exclusive of the required practical work in physical education. The maximum credit students may earn in a junior college is 64 semester hours. After a student's credits, wherever earned and counted in the order earned, amount to 64 hours, including advanced standing granted on the basis of examination, no additional credits are allowed for work completed in a junior college. Exceptions to these limitations may be permitted under the following conditions:

- 1 A student with a superior junior college scholastic record may be allowed more than 16 hours a semester if the dean has permitted excessive registration according to the following conditions: 17 hours if grade point average is 2.75 or better; 18 hours if 3.0 or better; 19 hours if 3.5 or better. Grade point average is based on a scale of Grade A, 4 points; B, 3 points; C, 2 points; D, 1 point; and F (failure), no points. Students are not allowed more than 19 hours for a semester's work.
- 2 Junior college students may, before graduation from junior college, complete in any approved senior college the work of one summer session without reducing the amount of credit allowed from junior college.

#### **Students from Other Countries**

Prospective students living outside the United States and its possessions should write the admissions director at least one year before the date of desired admission for information and forms about admission and approximate expenses. Upon approval of application papers and official records, students are notified by official letter. Students should not make plans to leave their countries without first obtaining permission to enter the university. All students must take the Test of English as a Foreign Language (TOEFL). Write to Test of English as a Foreign Language, Educational Testing Service, Princeton, New Jersey 08540.

Foreign students now studying in the United States may be admitted only after completion of at least 24 semester hours of C or better quality work in an accredited school offering a college-level program, provided that school's letter of admission was the basis for the student receiving a visa. To complete their credential files, students must furnish original and official transcripts from each school attended, both in this country and abroad. Students should not consider admittance final until they receive an official acceptance letter.

#### **Other Applicants**

##### **Former Students**

Former students not currently enrolled should file a request for permit to reenroll with the admissions director at least thirty days before the registration period. If fall semester applicants receive an early admission decision, they may preregister in July and August; preregistration for the winter semester and the summer session is limited to students enrolled the preceding term.

##### **Visiting Students**

Students who do not wish to earn a degree from the university may be admitted to the summer session as visiting college students. Admission requires certification by the student's college or university that the student is in good standing and has permission to enroll in approved course work for transfer credit back to that institution. Visiting student admission is usually limited to the summer session; classroom space may not permit visiting student admission in the fall and winter semesters. Application forms for certification can be obtained from the admissions office. At the end of the session, students must request that their grades be transferred to their respective schools.

##### **Hearer**

A hearer is registered and required to attend at least two-thirds of the session, but is not required to participate in the course work. Hearers receive no academic credit. They may be dropped from the course when, in the teacher's and dean's judgment, their attendance record justifies such action. Hearers may not change to credit status during the term enrolled.

## Registration

### **Evening College Applicants**

The admission procedure to the Evening College is the same as for the day division. For further information see the Evening College description within this section.

### **New Students**

Upon admission to the university students are notified that registration instructions will be sent by the registrar's office before registration. New students admitted for the fall semester may participate in advance registration during the summer months; new students admitted for the winter or summer terms participate in regular registration.

### **Former Students**

Former students not currently enrolled must submit a request for permit to reenroll. Former students who submit requests to reenroll at least one month before advanced registration for fall are eligible to preenroll. Those not admitted at an early date for fall and students admitted to the summer and winter terms will be mailed regular registration instructions.

### **Currently Enrolled Students**

Currently enrolled students may participate in advance registration for the fall, winter, and summer terms. Halfway through the winter semester currently enrolled students are mailed intent to continue enrollment cards; students returning these cards to the registration office by the proper date may preenroll for the fall semester and/or summer session. Students enrolled during the fall term may preregister for winter semester shortly before the end of the first semester. Currently enrolled students wishing to preenroll for the next semester in a different division must submit a change of division card to the admissions office.

Students registering after the regular registration period may have difficulty enrolling in desired subjects because of closed courses; moreover, students may not be permitted to carry the full course load and have to enroll for a proportionately reduced amount of work depending upon the enrollment date. The dates of regular registration are publicized in the university calendar. Ordinarily, students do not receive credit for work in a university division after the end of one-eighth of the scheduled time.

## Enrollment and Academic Advising

### **Registration Cancellation**

Students who have enrolled and paid their fees but do not wish to attend the university may cancel their registration any time before the first day of the semester. Cancellation forms may be obtained at the registrar's office. The full registration fee, minus a \$10 processing charge, will be refunded through the mail approximately two weeks after classes begin.

In most cases, incoming students are enrolled in the College of Arts and Sciences or the Evening College. Exceptions are transfer students who meet the specific admission requirements of the School of Business Administration or School of Education.

Students planning to pursue degrees in the School of Education or School of Business Administration are enrolled in the College of Arts and Sciences until they obtain 60 credit hours with a cumulative grade point average a 2.0, and, in the case of the School of Business Administration, have satisfied the school's general education requirements.

The dean's office in each of the divisions can assist their students in the assignment of academic advisers and with the following matters: making a change in course schedule, evaluating transfer credit, withdrawing from school, placing a course on pass-fail, and filing for degree candidacy.

### **College of Arts and Sciences**

All incoming students and all students who have not declared a major, who are enrolled in the College of Arts and Sciences, can receive academic advice from the College of Arts and Sciences dean's office, 303 Lucas Hall. Since it is important for students to determine what specific requirements must be satisfied to complete their chosen baccalaureate program, they are urged to declare a major as soon as possible. Once students have declared a major, they should inform the office so academic advisers can be assigned. The adviser, a faculty member in the student's area of interest, assists in selecting appropriate courses and advises in matters relating to degree requirements.

Students transferring into the college from other institutions may seek assistance from the dean's office to effect as smooth a transition as possible. The college will evaluate all transfer credit to determine its applicability to the specialized degree requirements of the college.

### **School of Business Administration**

Prospective business administration students should declare their major with the College of Arts and Sciences in their freshman year and

## General Education Requirements

plan to meet with an academic adviser in the School of Business Administration before they start their sophomore year.

### School of Education

Students wishing to prepare for teaching careers may choose either of the following alternatives:

1 After completing 60 hours of course work at UMSL or another accredited institution, students who intend to teach in elementary, early childhood, special education, business education, or physical education settings must apply for admission to the School of Education.

2 Students who intend to teach in other secondary school classrooms may elect to apply for admission to the School of Education to pursue the bachelor of science in education degree or they may elect to receive degrees from other UMSL colleges and schools and meet teacher certification requirements.

In either option students must meet university and departmental requirements as well as those for teacher education in Missouri. Teacher education curricula vary considerably. Careful planning of individual schedules is necessary to ensure selection of appropriate courses and avoid extending programs beyond 120 hours. Students should, therefore, seek advisory help from the Office of Teacher Education Advisement and Certification (461 SSBE) at the earliest opportunity. Regular consultation with advisers is essential.

The Office of Teacher Education Advisement and Certification provides assistance to all students interested in professional education programs and certification requirements. Questions about admission to the teacher education program, sequences of courses, prerequisites, graduation requirements, and related matters should be directed to that office.

### Evening College

A staff of academic advisers is available to help Evening College students plan programs appropriate to their individual needs. The Evening College urges students to use these services. For an appointment call the Evening College office.

Students must successfully complete the general requirements of the university, the school or college in which they are enrolled, and the specific requirements of their area of specialization. Following are the general education requirements for all degrees.

### Credit Hours

All candidates for the baccalaureate degree must complete 120 semester hours. At least 45 of these hours must be courses number 100 or above (or comparable courses transferred). Students must maintain a minimum 2.0 grade point average overall as well as in their area of specialization. Students seeking two degrees must complete at least 24 additional credit hours over the requirements for one of the degrees.

### Basic Skills

During the first year, students must show from their high school or college transcript, by examination, or by appropriate courses, competency in basic communicative and mathematical skills. During the first year students should check with their divisional dean's office to verify that their proficiency has been properly recorded. Proficiency may be shown by one of the following in each area.

### Communicative Skills

- 1 Satisfactory score on the English placement test. (The admissions office has the dates this test is given.)
- 2 Grade of C or better in a college-level English composition course. At UMSL, English 10.

### Mathematical Skills

- 1 Completion of two years of high school mathematics exclusive of general mathematics with grades of C or better.
- 2 Satisfactory score on the mathematics placement test. (The admissions office has the dates this test is given.)
- 3 A passing grade in a college-level mathematics course.
- 4 A passing grade in Mathematics 02.

### Breadth of Study

Students must complete at least 42 hours in the following three areas, with at least three courses in each area. Courses meeting these requirements are specified in the description of courses.

1 Humanities: literature; music history, literature, theory, or appreciation; art history or appreciation (applied art and music courses do not count); philosophy and logic. (Symbol [H])

2 Natural sciences and mathematics. (Symbol [SM])

3 Social sciences; administration of justice, geography, political science, history, economics, sociology, anthropology, and psychology. (Symbol [SS])

#### **American History and Government**

Students must satisfactorily complete a course or courses in American history or government taken at the University of Missouri or at other colleges or universities in Missouri. Transfer students should check with the dean's office of their division to find out if they have fulfilled this requirement.

This requirement may be satisfied by one of the following courses:

History 3, 4, 5, 120, 207, 301, 302, 303, 304, 305, 306, 311a, 311b, 314, 315a, 315b, 322a  
Political Science 11, 130, 140, 176, 215, 230, 235, 320, 321, 331, or 375

#### **Academic Residence**

Students must be in residence for at least 24 of the last 30 hours of graded credit (exclusive of pass-fail grades), except under unusual circumstances, to be decided by the dean.

#### **Graduation**

Students must file a degree application form with their respective dean's office at least one year before the expected graduation date. The dean's office makes a final check to determine that all graduation requirements have been met. Students should check with the dean's office or an adviser to be sure their program fulfills the requirements of the department and division, as well as the university general requirements.

To assure graduating at the end of a specific semester, all work for that semester and any delayed grades from previous semesters must be completed and the grades sent to the Office of Admissions and Registrar no later than the official date for submission of final semester grades.

#### **Courses Not Approved for Degree Credit**

English 09

Mathematics 02

Education 2, 30, 31, 32, and 33



## Academic Policy

**Course Descriptions**

Undergraduate and graduate courses offered at UMSL are listed alphabetically by department or field within the College of Arts and Sciences, School of Business Administration, and School of Education in the course description section of this bulletin. An explanation of their numbering and other notations is given at the beginning.

Approximately four weeks before each semester a *Schedule of Courses* is published listing the specific courses offered that semester and their meeting times and locations. The university reserves the right to cancel without notice any course listed in this bulletin or the course schedules for any semester or to withdraw any course which does not have adequate enrollment at the close of registration.

**Credit Hours**

The university credit unit is the semester hour, which represents a subject pursued one period weekly for one semester of approximately sixteen periods or for a total of approximately sixteen periods for one term. Generally, a course valued at 3 semester hours meets for three periods weekly for one semester, a 2-credit course two periods a week for a semester, and so on. Normally, the lecture or recitation period is fifty minutes long and the laboratory period one hour and fifty minutes. The number of credit hours is in parentheses after each course title. If the credit is variable, to be fixed in consultation with the instructor, it is shown by (credit arranged) or by minimum and maximum credit, such as Research (2-8).

**Grading System**

A four-point grading system (A=4, B=3, C=2, D=1, F=0) is used for all undergraduate students. Grade point average is computed by dividing the total quality points (number of credit hours for a course multiplied by the grade value received) by the number of hours taken.

At the end of each semester and summer session the admissions director informs students of their grades; a copy can be mailed to parents at the student's request.

**Examinations/Delayed Grades**

Examinations may be given only at regular class meeting times or as designated by the Committee on Curriculum and Instruction. A student whose work is incomplete at the end of the semester and has, in the instructor's judgment, sufficient reasons for such, may, with the instructor's and departmental chairperson's approval, be assigned a "delayed" grade. This work must be finished no later than the end of the next semester, or the grade automatically becomes F. The dean may, in unusual circumstances, extend this time limit. (A summer session cannot be counted as a semester.) Notice of a change in a delayed grade shall be given to the admissions director on a special form.

When, in the instructor's judgment, there is no basis for evaluating the work of students who do not officially drop a course or officially withdraw from the university, a mark of "Y" (unauthorized withdrawal-no basis for evaluation) is given. This grade may be changed to "Excused" only by petition to the Committee on Admissions.

**Pass-Fail Option**

Undergraduate students in good standing may take up to 24 credit hours during their academic careers on a pass-fail grading basis. This includes courses taken as electives or which satisfy the general education requirements; normally, courses required for a specific degree may not be taken pass-fail. Academic departments may designate other courses within their jurisdiction which may not be taken under the option.

Students register for courses in the normal manner, and may exercise the pass-fail option by notifying their respective dean's offices before the end of the first four weeks of the semester or the first two weeks of the summer term. Instructors are not informed of students taking courses pass-fail.

Passing grades (A through D) have no numerical value in computing overall academic average, but do satisfy hourly graduation requirements. An F grade received on the pass-fail system is computed in the overall average.

**Repeating Courses**

Students passing a course are not given credit for repeating the course except in those courses which require a minimum C grade as a prerequisite for other courses in the same department. In such cases, students receiving D or F grades do not receive double credit hours toward graduation, but the points of the grades assigned them and the hours of the repeated courses are used in computing the average.

**Prerequisites**

A minimum grade of C is required to meet the prerequisite requirements of any course except with the permission of the department in which the second course is taught. An academic standing prerequisite is stated by class, as senior standing (senior class standing). Requirements for class standing vary; students should determine the requirements for their division. Individual course restrictions are listed in the description of courses.

**Course Load**

A normal full-time semester work load is 15 hours; 6 hours is normal for the summer session. Minimum full-time enrollment is 12 hours, excluding any physical education or military sciences. Students who have shown ability to carry successfully more than 16 hours may enroll for additional hours with the approval of their advisers or deans. Students may not take more than 20 hours in a semester or 10 hours in a summer session.

**Attendance**

Students are expected to attend class regularly, and, in accordance with the UMSL Bylaws, faculty may set up penalties for excessive absences. Students absent from class for more than three successive days are reported to the dean.

Students should tell their divisional dean's office of an extended absence. An absence known in advance should be reported to the instructors of courses that will be missed. Make up of examinations or work missed is allowed at the instructor's discretion. Students excused from class for valid reasons by their dean shall be allowed, if possible, to make up work missed, provided the dean notifies the instructor in writing.

**Dropping/Adding Courses**

To change original enrollment students must get approval from their advisers and respective deans. Students may drop/add courses by filing a petition form in their dean's office. There is a \$5 fee for each petition form; as many as five courses may be dropped/added on one form. Students may not enter courses after the first two weeks of the semester or the first week of the summer session. Students may withdraw from courses without a grade up to the end of the fourth week of the semester and the second week of the summer session.

From the fifth through the twelfth weeks (for summer session, the third through the sixth weeks) students may withdraw from courses with an "Excused" grade, providing they are passing the courses and receive the approval of their instructors, advisers, and deans' office representatives. Otherwise, a failing grade is given. Students not attending classes who fail to drop officially receive F or Y grades.

After this period, "Excused" grades are given only in exceptional instances where instructors' and deans' approvals are given. These grades are recorded on students' official records at the end of the term; if an F grade is recorded it is counted in computing the grade point average. No partial credit is granted students who withdraw from a course during any semester or otherwise fail to complete the work required for full course credit.

**Section Changing**

At any time during the semester or session students may change course sections (changes in class time). Forms for doing this may be obtained, completed, and submitted at the department office for day courses and the Evening College office for evening courses. Course cards for the sections being added should be submitted with the forms. There is no fee for section changing.

**Change of Major**

To change academic majors students should consult their advisers and dean's offices. Students admitted to one division may pursue work in others under the conditions set forth by the other division faculty. The chairpersons

of students' major departments shall determine which courses in other divisions, or other institutions, shall apply as credit toward the degree.

**Withdrawal after Classes Begin**

After classes begin students may withdraw from the university by completing the withdrawal form, available in the dean's offices. During the first four weeks of the semester and the first two weeks of the summer session students may withdraw from the university without receiving grades. After this period grades of F or "Excused" are issued based on whether the student is passing or failing. After the semester twelfth week or summer session sixth week "Excused" grades are given only in exceptional instances where instructors' and deans' approvals are given.

These grades are recorded on students' official records at the end of the term; an F grade is counted in computing the grade point average. No partial credit is granted students who withdraw from school during any semester or otherwise fail to complete the work required for full course credit. Students who stop attending classes without officially withdrawing from the university are issued F or Y grades; F grades are counted in computing grade point averages.

**Academic Probation, Suspension, and Dismissal**

Generally, the bases for student probation are as follows: beginning students (less than 12 hours completed) if their grade point averages are below 1.5; advanced students (12 or more hours completed) if their grade point averages are below 1.75. The dean may place students on probation for other reasons, such as excessive absences or neglect of academic duties. To be removed from probationary status, students must make a semester average of 2.0 or a cumulative average of 1.75.

Beginning students are subject to suspension if they do not pass more than half their work or their grade point averages drop below 1.0. Advanced students may be suspended if they do not pass more than two-thirds of their work, their semester averages are below 1.5, or their grade point averages fall below 1.75.

Students may be suspended if they have been on scholastic probation for two or more semesters, not necessarily consecutive, and again become subject to probation. The dean may retain students on probation rather than suspend them if circumstances justify such action.

Students who have been suspended may be dismissed if they again become subject to suspension. Students placed on probation because of poor scholastic records at other institutions are regarded as having been once suspended under these rules.

Normally, students who have been dismissed are not considered for readmission. In certain unusual cases, students may be readmitted on probationary status after one year.

Students admitted on probation to the summer session shall enroll for at least 6 academic hours. If they receive any grades below C, their work will be reviewed by the divisional dean or appropriate committee to determine eligibility to reenroll. Students enrolled in the summer session whose grade point averages are below 1.5 may have their work reviewed. Students suspended or dismissed from one division shall not be admitted to any other division until they are eligible for readmission to the original division, without the consent of the divisional dean or appropriate committee. In this event, the dean or committee shall file a written statement for the student's official records stating the reasons for the decision.

**Academic Dishonesty**

Academic dishonesty is one of the most serious offenses UMSL students can commit. Those guilty of dishonesty may be dismissed from the university. Plagiarism is considered a dishonest act. Plagiarism is using other people's ideas, statements, or approaches without giving them full credit in a citation. It also includes writing a paper made up solely of others' statements and ideas without any original thought, even if full citation is given to the original authors.

**Degrees**

Degrees are conferred at commencement with candidates present for the awarding of diplomas. Only in unusual circumstances may degrees be conferred *in absentia*.

**Honors****Dean's List**

At the end of each semester the College of Arts and Sciences, School of Business Administration, and School of Education send letters of commendation to undergraduates completing at least 9 hours of graded courses with grade point averages of 3.2 or above for the semester.

**"Who's Who Among Students in American Universities and Colleges"**

Eligible students may be nominated to *Who's Who Among Students in American Universities and Colleges* by students (whether for themselves or others), faculty members, or administrators. Nominees are selected on the basis of scholastic ability (a cumulative grade point average of 2.5 or higher), participation and leadership in academic and extracurricular activities, and service to the school and promise for future usefulness. Nomination forms and further information may be obtained in the academic dean, dean of student affairs, and student activities offices.

**Latin Honors**

To graduate with Latin honors, students must have attended UMSL for 60 graded hours and meet the following qualifications: cum laude—3.2 to 3.49 grade point average; magna cum laude—3.5 to 3.79 grade point average; summa cum laude—3.8 to 4.0 grade point average. All honors must be recommended by the major department.

**Transcripts**

The admissions director furnishes transcripts of credits to students upon written request and payment of a fee. Transcripts are furnished to students' parents or guardians upon payment of fee only if students have filed written consent with the admissions office. The fee for an official transcript is \$1; a photostatic copy is fifty cents.

Students transferring to another University of Missouri campus may ask the UMSL admissions director to furnish a transcript, free of charge, to the admissions director at that campus.

Requests for transcripts from organizations supporting students or with fee compensation programs are not honored unless the student has filed a consent form with the admissions office authorizing the release of such information.

Transcripts are not issued to or for students who have financial obligations to the university until those obligations are paid in full.

**Transfer within the University of Missouri System**

UMSL will allow undergraduate students to transfer to another University of Missouri campus with minimum difficulty, provided such transfers are not made to avoid disciplinary or academic requirements.

Students within the last 30 hours of graduation may take a limited number of courses at another campus in the system, provided the last 15 hours are taken at UMSL and the work is approved by their respective deans and departments.

Acceptable credits earned at other University of Missouri campuses are transferred at the grade earned. All grades transferred, including D and F grades, are computed in grade point averages except where students have earned 12 or more acceptable credit hours at another institution outside the system before acceptance at UMSL. In such cases, grades from the University of Missouri campus are treated as other transfer credits. Students with grade point averages below 2.0 normally are not allowed to transfer to UMSL.

## College of Arts and Sciences

The College of Arts and Sciences consists of more than 250 full-time faculty in the following departments, each offering work leading to specific degree programs: administration of justice, biology, chemistry, economics, English, fine arts, history, mathematical sciences, modern foreign languages and literatures, philosophy, physics, political science, psychology, and sociology and anthropology.

**College Requirements**

In addition to the university general education requirements, all majors in the College of Arts and Sciences must meet the following:

- 1 Non-Euro-American studies requirement
- 2 Requirements of the specific baccalaureate degree program
- 3 Departmental requirements for the chosen major or interdisciplinary program

**Non-Euro-American Studies Requirement**

To expose students to a culture radically different from their own the college requires students to take a 3-hour course focusing primarily upon aspects of a culture and not the interactions of the culture with Euro-American cultures. This requirement may be met by one of the following courses:

Anthropology 201, 203, 205, 207, 209  
 Art 11, 12, 145  
 Music 9, 10  
 History 61, 62, 71, 361, 362  
 Philosophy 170  
 Political Science 253, 254, 255, 352

**Degree Requirements**

To graduate, students must complete all university general education requirements and the requirements of the college and their department, and either of the following options:

- 1 120 graded hours with a C grade or better, which should constitute a complete degree program. This option cannot include pass-fail courses.
- 2 A cumulative grade point average of 2.0 or better for all hours attempted.

*Bachelor of Arts (A.B.)*

All A.B. degree candidates must successfully complete:  
 A curriculum which includes a departmental

major or approved interdisciplinary field. A major must include at least 30 credit hours, but no more than 45 hours.

Thirteen credit hours or the equivalent in proficiency in one foreign language.

- 1 Students entering with no high school language units must enroll in the following language sequence: 1, 2, 101 (or 100).
- 2 Two recent years of the language on the high school level, with above average performance, are necessary for students to perform satisfactorily in Language 2. Students with deficient backgrounds may enroll in Language 1.
- 3 Students with four high school units in one foreign language are exempt from this requirement. If students using that language for proficiency elect to take Language 1 or 2, they must finish the sequence through 100 or 101 in order to receive credit for Language 1 and/or 2. Students wishing to be exempt, who have excelled in their courses or otherwise acquired language proficiency, must take a proficiency examination, given in January and August. (Specific dates are announced in the course schedules.) Students with a grade less than passing must take Language 100 or 101. With the exception of native speakers, students are not permitted to take a course above 101 without taking the proficiency exam.
- 4 Native speakers may meet the requirements by presenting proof of competence. The department will certify native speakers of those languages taught at the university. Those proficient in other languages must submit certification of competence to the college.
- 5 Students in German, Russian, and French may substitute Scientific Languages 100 for Language 101 whenever offered.
- 6 Students may not repeat, for either credit or quality points, an elementary course if they have already completed a higher level course for which the elementary course, or its equivalent, is a prerequisite.

Students may take any number of hours of applied music (private lessons) or studio art courses toward a degree. Students not majoring in music may not take more than 8 hours in music performing organizations (Music 40, 41, 50, 52, et. seq.) toward

## Administration of Justice

graduation, including credit transferred. Courses in studio art and applied music (private lessons or performing organizations) do not fulfill general education requirements in the humanities.

*Bachelor of Science (B.S.)*

The college offers the B.S. degree in administration of justice, chemistry, economics, physics, and applied physics (with a concentration in astrophysics possible). The requirements are generally the same as the A.B. degree except that more credit hours in the major discipline may be counted toward satisfying the 120 hours required. A foreign language proficiency is not required by all departments.

*Bachelor of Music (B.M.)*

The requirements are the same as the A.B. degree with the addition of music education courses leading to teacher certification. A foreign language proficiency is not required; however, foreign language study is required for applied voice students.

**Certificate Programs**

Certificate programs are offered in East Asian, European, Latin American, and international studies. For details, see the Certificate Programs description within this section.

The Administration of Justice (AOJ) department offers work leading to the B.S. degree in administration of justice.

The phrase "criminal justice studies" is subject to a variety of definitions and frames of references. The department has adopted the following, developed by Dean Richard A. Myren, State University of New York at Albany: "Criminal justice studies are integrated, interdisciplinary sequences of scholarly teaching and research in the behavioral and social sciences (including law and public administration) focused on the social problems of crime."

In addition to criminal justice studies, the fields of administrative and social justice are also studied. The department's interdisciplinary character provides students with methods of approaching and understanding the assumptions, values, and processes of the justice enterprise. Within the career orientation of the program, students are given many concrete situations by which to analyze their own values as they relate to particular social problems. The department also stresses professional orientation, working with several operating agencies.

Faculty represent a diverse range of interests and backgrounds. Most full-time members have served as criminal justice practitioners, as well as consultants with operating criminal justice agencies.

**General Education Requirements**

Majors must satisfy the university and college general education requirements. Although not required, 13 hours of a foreign language are recommended. Students not wishing to take a language must take 13 hours in social sciences above those for the general education requirement. Majors may not take AOJ courses or Sociology 30 and 120 pass-fail.

**Degree Requirements***Core Curriculum*

Majors must complete the requirements of the core program and one of the career options.

Core curriculum requirements are:

- 1 Sociology 10
- 2 Sociology 30 or another data and/or

statistical course. Alternatives, at the adviser's discretion, are Business Administration 131, Mathematics 31, Political Science 100, Psychology 101, or Sociology 120.

3 Sociology 326 or one of the following courses, with the adviser's approval: Sociology 200 or 214

4 AOJ 70, 101 (a new course replacing 40 and 200), 201, 380, and 399

5 AOJ 99 or one of the following:

Economics 270, 301, or 304

History 326

Political Science 170 or 176

Sociology 202

Anthropology 227

Psychology 155

As many as 18 hours of administration of justice or police science courses may be transferred, as part of the major, from Missouri junior colleges. Transfer students should check with the admissions office.

#### *Career Options*

Students must fulfill the requirements of one of the following options:

##### American Policing System

Economics 51

AOJ 71, 250, 260, and 325

Political Science 140

9 additional units, above the introductory level, of social science or philosophy courses.

##### Treatment of Offenders

Psychology 3, 145, and 155

Sociology 130

AOJ 310 and 340

6 credits in each of the following fields:

Psychology 171, 225, 246, 248, 265

AOJ 205, 225, 227, 325, 330

##### Etiology and Prevention

Psychology 3

3 credits selected from the following:

Psychology 145, 170, or 171

Sociology 130

AOJ 205, 225, 227, 310, 330, and 340

##### Criminal Justice Planning

Business Administration 104, 224, and 375

Mathematics 40 and 101

Economics 301

6 credits selected from the following:

AOJ 205, 225, 227, 310

In addition to these programs, the department permits selected students to work out special curricular programs to meet their needs. With the approval of their advisers, students may merge two programs; in addition, it is possible to develop a special major in cooperation with another instructional department.

All students have an opportunity to participate in the activities of the AOJ Students Association.

## Biology

The biology department offers work leading to the A.B. in biology, and, in cooperation with the School of Education, the A.B. in biology with teacher certification and the B.S. in education with a major in biology.

In general, the program is designed to prepare biology majors for further graduate training in research or professional training in areas such as medicine, dentistry, veterinary medicine, and optometry. Biology majors also enter such fields as medical technology, public health, bioengineering, and high school biology teaching.

Biology staff members are engaged in teaching and research in areas ranging from bacteriology to population studies. Majors have the chance to take courses which help them develop both theoretical and experimental backgrounds necessary for further work in some of the most rapidly expanding fields of biological science. Majors also can pursue indepth studies in specific areas through advanced courses, seminars, and individualized research programs. Students are encouraged to attend a summer session, usually between their junior and senior years, at a field biology station. Many of these stations offer financial support through summer fellowships.

Department facilities include research and teaching laboratories, environmental chambers, a greenhouse, animal care rooms, and a large array of supporting equipment such as an ultracentrifuge, electron microscope, and amino acid analyzer. Also available are wildlife facilities at Weldon Springs experimental farm and Tyson Tract, both within 30 to 45 minutes of the campus.

The department also participates in a cooperative consortium program in botany with Washington University, St. Louis University, Southern Illinois University-Edwardsville, and Missouri Botanical Gardens.

### General Education Requirements

Students must satisfy the university and college general education requirements. Biology courses may be used to meet the university's science and mathematics area requirement.

Since many graduate schools require proficiency in French, German, or Russian, it is recommended that students satisfy the college's foreign language requirements with one of these languages. Biology majors may substitute another language in consultation with their advisers.

Up to 24 credit hours may be taken pass-fail. Excluded from this option are biology courses other than 289 and 290 and required courses in chemistry, mathematics, and physics.

### Degree Requirements

Biology majors must take at least 33 credit hours in biology, 13 of which must include Biology 10, 224, 276, and 289. Considerable flexibility is available in choosing the remaining biology courses, but at least one course must be taken in each of the following areas:

Cellular and molecular area: 216, 235, 310, 314, 317, 334

Organismal area: 213, 235, 250, 280, 313, 334, 381

Population and ecology area: 220, 242, 280, 342, 346, 381

Courses satisfying a requirement in one of these areas may not be counted for that purpose in another area. Students must also complete three biology laboratory courses and 5 hours of electives in biology at the 200 level or above in addition to those satisfying other requirements.

### Related Area Requirements:

Chemistry 11, 12, and 261, and one of the following: Chemistry 122, 262, or 263. Many dental and medical schools require an additional semester of organic chemistry. Students should inquire if this additional requirement can be filled by the biological chemistry course.

Mathematics 31 and 101 or its equivalent

Physics 11 and 12

Additional work in chemistry, mathematics, and physics is recommended.



## Chemistry

The chemistry department offers courses leading to the A.B. in chemistry; the B.S. in chemistry; in cooperation with the School of Education, the B.S. in education with emphasis in chemistry and the A.B. in chemistry with teacher certification; and, in cooperation with the School of Business Administration, the A.B. in chemistry with a business option.

The B.S. degree in chemistry is the usual foundation for graduate study in chemistry, while any bachelor's degree in chemistry provides students with professional competence to enter the chemical industry. The St. Louis metropolitan area is a major center for industrial chemistry, and the demand for graduates consistently exceeds the supply.

A major in chemistry provides students excellent preprofessional training in the health sciences. A double major in chemistry and biology is often chosen by premedical and pre dental students and those interested in graduate work in biochemistry and biology.

The Department of Chemistry is accredited by the American Chemical Society. Students completing the B.S. degree in chemistry are certified to the American Chemical Society and are well prepared for graduate study in chemistry.

**General Education Requirements**

Students must satisfy the university and college general education requirements. Courses in chemistry may be used to meet the university's science and mathematics area requirement. The college's foreign language requirement fulfills the departmental requirements for A.B. candidates; B.S. candidates should meet the requirements in German or Russian. Chemistry majors normally include Language 100 in their foreign language sequence.

Chemistry majors may not take required chemistry, mathematics, or physics courses pass-fail nor may B.S. degree candidates take the 6 elective hours in science on this option. Language courses may be taken pass-fail. No freshman may take Chemistry 11 and 12 pass-fail regardless of major.

**Degree Requirements***Bachelor of Arts in Chemistry*

This degree is intended primarily for preprofessional students in the health sciences and related areas, as well as prelaw students interested in patent law. Candidates must complete the following courses, totaling 32 hours: Chemistry 11, 12, 122, 202, 231, 232, 233, 261, 262, 263, and 289 (2 credit hours).

No more than 45 hours in chemistry may be applied toward the degree. Each chemistry major must present a seminar and pass a comprehensive examination during the senior year.

*Bachelor of Science in Chemistry*

This is the first professional degree in chemistry. It may be taken as a terminal degree by students intending to become professional chemists, or for preparation for graduate work in chemistry or biochemistry. Candidates must complete the 32 hours required for the A.B. degree in chemistry as well as the following 12 hours: Chemistry 234, 264, 324, 341, and 343

Students must also take 6 elective hours from astronomy, biology, chemistry, mathematics, or physics. They are encouraged to take Chemistry 290. At least 3 of these elective hours must be in chemistry at the 200 level or above.

At least 47, but no more than 50, hours of chemistry courses may be applied toward the degree. Each candidate must present a seminar and pass a comprehensive examination during the senior year.

**Related Area Requirements**

Candidates for both degrees must also complete:  
Mathematics 80, 175, and 201  
Physics 111, 112, and one laboratory course, preferably 201.

*Bachelor of Science in Secondary Education with an Emphasis in Chemistry*

In addition to the general requirements for the B.S. degree in secondary education, students must complete the 32 required hours for the A.B. degree in chemistry with the following exceptions: Chemistry 280 is required instead of Chemistry 202 and 289. Physics 1 and Chemistry 371 are recommended.

## Economics

*Bachelor of Arts in Chemistry with Teacher Certification*

Students must complete the A.B. in chemistry requirements as well as the following courses:  
 Education 101, 163, 271, and 302  
 Chemistry 280  
 Psychology 3, 171

*Bachelor of Arts in Chemistry with a Business Option*

The following suggested program has been prepared in cooperation with the business school for students seeking careers in chemical sales, market research, and so forth. In addition to the A.B. in chemistry requirements, the following core program is suggested:

Economics 51  
 Business Administration 131 and 140

Students may then wish to choose one of the following options:

Quantitative Management  
 Business Administration 109, 202, 308, 375

Marketing Management  
 Business Administration 106, 275, and 301

Financial Management  
 Business Administration 204, 334, and 350

Accounting  
 Business Administration 145, 340, and 345

Several alternative degree programs are offered by the economics department. The A.B. in economics provides a flexible, liberal arts orientation for students seeking careers in general business or government. However, the program also gives students opportunities to prepare for graduate professional training as economists by incorporating mathematics and other specialized courses. The B.S. in economics places more emphasis upon the statistical and quantitative aspects of economics to prepare students for careers in economic research and forecasting. However, employment opportunities may be limited with only undergraduate preparation.

The economics faculty considers research an integral part of good teaching, and concentrates its research in two areas: urban affairs and international economics and comparative economic systems. Research projects have included housing, transportation, employment, taxation, zoning, Latin America, the Soviet Union, and international trade flows. The departmental emphasis is applied, rather than theoretical, strengthening undergraduate education and giving students a chance to help in research.

**General Education Requirements**

All economics majors must meet the university and college general education requirements. B.S. degree candidates, however, do not need to fulfill the college's foreign language requirement. B.A. candidates may take any foreign language to meet this requirement. Courses in economics may be used to meet the university social sciences requirement.

Courses outside the major field and Economics 50 and 51 may be taken pass-fail.

**Degree Requirements***Bachelor of Arts in Economics*

A.B. degree candidates must take at least 30, but no more than 45, hours in economics. The following courses are required:

Economics 50, 51, 250, and 251  
 Business Administration 140  
 Mathematics 31 or Business Administration 131

(Business Administration 140 and Mathematics 31 or Business Administration 131 should be completed before the end of the sophomore year.)

Since many theories in economics make use of calculus, it is also recommended that students take Mathematics 80.

The department encourages students to complete the minimum 30 hours in economics and then develop as much breadth as possible in related fields. Students interested in general business or investment might select courses in business administration, particularly finance. Courses in history, philosophy, or political science might be selected by students interested in public administration.

Students interested in becoming professional economists should review the entrance requirements of graduate schools they would like to attend. Most graduate schools would want students to take the following courses: Mathematics 80, 175, 201, 245, and 320

#### *Bachelor of Science in Economics*

Candidates for the B.S. program must take the same courses as A.B. candidates, as well as the following:

Business Administration 104 or Mathematics 122  
Mathematics 80, 175, and 201

Students who had officially declared a major in economics under the B.S. degree program before September 1975 may fulfill either the requirements in the 1974 *Undergraduate Bulletin* or the above. All others must fulfill the above requirements.

The electives suggested for the B.S. degree are also recommended for the A.B. program. However, the following are especially recommended:

Mathematics 245, 320  
Economics 304, 365, 366  
Business Administration 375

## English

The Department of English offers the A.B. in English, A.B. in English with certification for secondary teaching, B.S. in secondary education with a major in English, and A.B. in speech communication.

Students seeking specific information about career opportunities for English majors should obtain from the department *English: The Pre-Professional Major*, prepared by the Modern Language Association of America.

The English faculty approaches study and teaching from a variety of academic viewpoints, thus insuring a diverse exposure for the major to the artistic, ethical, and factual issues raised in any literature or language course.

## English

### General Education Requirements

Majors must meet the university general education requirements and the requirements of the school or college from which they expect to receive their degrees. English courses, except 9, 10, 22, 65, 115, 160, and 262, may be used to meet the university's humanities requirement. The college's foreign language requirement may be met in any language.

English majors may take any English course, except 9, 10, 65, 160, and 262, pass-fail. The university communicative skills requirement is a prerequisite for all English courses numbered 130 or above.

### Degree Requirements

#### *Bachelor of Arts in English*

English majors must complete at least 36, but no more than 45, hours in English exclusive of English 9, 10, and 65. Required courses include:

Any two courses from the sequence:  
English 131, 132, 133, 134, 135

English 160 (for English majors this course is a prerequisite or corequisite for 300-level courses in English).

One of the following American literature courses:

English 171, 172, 270, 373, 374, 375, or 376

Four courses, one each from any four of the following areas in English literature:

Medieval: 324, 325

16th Century: 332, 337, 338, \*339, \*341

17th Century: \*339, \*341, 342, 345, \*\*346

18th Century: \*\*346, 352, 353, 364

19th Century: 365, 368, 369, 371, 372

20th Century: 383, 384, 385, 386

\* Satisfies the requirement in either 16th or 17th Century, but not both.

\*\* Satisfies the requirement in either 17th or 18th Century, but not both.

No more than 6 hours of English taken on a pass-fail basis may be counted toward the 36 hour minimum requirement for a major in English. Majors must complete at least 18 graded (i.e., not pass-fail) hours in English courses at the 200 level or above with an average of 2.0 or better in these courses. Transfer students majoring in English must complete at UMSL a minimum of 12 graded hours in English courses at the 200 level or above with an average of 2.0 or better in these courses.

Work in 100-level courses provides a background in literary history and forms and the means for discussing literary issues, on paper and orally. Thus, the department recommends that students take the 131-135 sequence by the end of the sophomore year.

Students should consult with faculty advisers to determine which upper-level courses best satisfy their major needs and interests.

*Bachelor of Arts in English with Certification for Secondary Education*

In addition to the requirements for the A.B. in English students must meet the following requirements for secondary certification:

1 An additional course in American literature from those listed under the A.B. degree requirements.

2 English 262 (taken concurrently with student teaching).

3 A minimum of 12 hours in composition, rhetoric, grammar, and linguistics. English 10, 65, and 160 may count toward this total.

English 160 must be taken, and 6 hours must be taken from the following courses:

English 220, 221, 321, 322

Courses in professional education listed as requirements under the Department of Administration, Philosophy, and Secondary Education are also required for secondary certification.

*Bachelor of Science in Secondary Education with a Major in English*

The required courses in English and professional education are the same as those for the A.B. with certification for secondary education. However, students fulfill the general education requirements of the School of Education rather than those of the College of Arts and Sciences.

**Speech Communication**

The A.B. degree in speech communication provides students with opportunities to study theatre, public address, and small group, interpersonal, and mass communication, creating a framework for viewing communication from theory, performance, and research perspectives.

**General Education Requirements**

Majors must satisfy the university and college general education requirements. The college's foreign language requirement may be taken in any language. Any speech communication course may be taken pass-fail, but only 6 hours of pass-fail work can count toward the major requirement of 30 hours.

**Degree Requirements**

Majors must complete a minimum of 30, but no more than 45, hours in speech communication courses. At least 18 of these hours must be taken at UMSL. One course from each of the following four areas is required:

Rhetoric and Public Address  
Speech Communication 101, 140, 201, 240

Communication Theory and Research  
Speech Communication 203, 205, 230

Theatre  
Speech Communication 120, 121, 123, 125, 221, 225

Mass Communication  
Speech Communication 110, 211, 212, 214, 250

## Fine Arts

Students must also complete 3 hours in Speech Communication 199.

Advisers are available to help students select electives in a special area of interest or courses which provide a depth background in the discipline, and cocurricular projects and activities relevant to student interests and vocational plans.

The department, which includes art and music, offers work leading to the A.B. in art history, music, or music history and literature; the B.M. degree in music education, which leads to teacher certification in grades one through twelve; and the B.M. in music performance.

In addition to academic courses, there are opportunities to apply the arts. Gallery 210 in Lucas Hall houses a variety of public exhibits during the school year under art faculty direction with student assistance. In addition to the St. Louis Art Museum, there are a wide variety of private galleries in the area. The department also has a slide collection of 50,000 works.

Eleven musical organizations are open to all by audition, with credit optional: Concert Band, Chamber Band, Orchestra, Jazz Ensemble, University Chorus, University Singers, Opera Workshop, and Chamber String, Woodwind, Percussion, and Brass Ensembles. In addition to campus concerts, some ensembles make short tours and the university choruses sing annually with the St. Louis Symphony. Twenty-five members of the symphony teach applied music lessons and appear occasionally in solo recital on campus.

### General Education Requirements

General education requirements apply to all majors, except students in the B.M. degree program are not required to take a foreign language. Courses required for degree programs may not be taken pass-fail.

Students may take any number of hours of applied music (private lessons) or studio art courses toward a degree. Non-music majors may not take more than 8 hours in music performing organizations (Music 40, 41, 50, 52, et. seq.) toward graduation including credit transferred. Courses in studio art or applied music (private lessons and performing organizations) do not fulfill the humanities general education requirement. Department courses meeting the non-Euro-American study requirement are Art 11, 12, or 145, or Music 9 or 10.

**Degree Requirements***Bachelor of Arts in Art History*

Majors in this field study the visual arts from prehistory to the present from the standpoints of style and symbol. A minimum of 35, but no more than 45, hours in art history are required. Required courses are:  
Art History 1, 3, 205, 221, 226, 241, and 293

Nine hours in studio art may be added. French or German is recommended for the foreign language requirement.

**Degree Programs in Music**

Admission to all music degree programs is by audition and interview to demonstrate musical aptitude and potential, moderate technical proficiency, and seriousness in selecting music as a four-year course of study. Auditions are scheduled from January to May for the fall semester; a limited number are held in December for the winter semester. Applicants must be admitted to the university before requesting an audition.

A senior recital is required for graduation as evidence of sound musicianship, a close acquaintance with a portion of musical literature, and the ability to bring it to actual performance.

Music majors are required to participate in an approved ensemble (concert band, chorus, or orchestra) and to study one applied area progressively each semester of the degree program. Standards of achievement in applied music are on file in the department office. Majors are required to appear in performance at the department's discretion. Non-keyboard players are required to pass an exam in piano proficiency (Music 118 or equivalent for instrumentalists, Music 120 for vocalists).

The following core courses are required for all music majors:  
Music Theory  
Music 3, 4, 111, 112, and 141

Music History and Literature  
Music 101, 102, and at least one 300-level course

Senior Readings 192

In addition to the core curriculum, students must fulfill the following requirements for the specific degree program.

*Bachelor of Arts in Music*

Music Theory  
Music 151

Applied Area  
16 credit hours of private lessons

Ensemble  
4 hours maximum credit

*Bachelor of Arts in Music History and Literature*

Music Theory  
Music 151

Music History and Literature  
Two additional 300-level courses

Applied Area  
12 credit hours of private lessons

Ensemble  
4 hours maximum credit

*Bachelor of Music in Music Education*

Applied Area  
16 credit hours of private lessons

Music Theory  
Conducting 151, 152, and 251  
Conducting Materials Lab 161, 162, and 261

Instrumental Certification  
Beginning Instrumental Techniques, 8-13  
credit hours

Vocal Certification  
Diction 125 and 126

Ensemble  
4 hours maximum credit

Curriculum and Methods of Teaching  
6 hours, Elementary and Secondary School  
Music

Professional Education and Student Teaching  
18 hours

*Bachelor of Music in Performance*

Music Theory  
Music 121 and 122  
Conducting 151 and 152

Music History and Literature  
An additional 300-level course

Applied Area  
32 credit hours of private lessons (junior and senior recitals required)

Ensemble  
Large Group, 8 hours  
Chamber Ensemble, 4 hours

## History

History studies help students prepare for careers in law, teaching, business, government service, historical research, and teaching. The history department stresses student contact with working historians at all levels of instruction, and the program is organized to serve as an introduction to the historical discipline in general.

The department offers work leading to the A.B. in history, and, in cooperation with the School of Education, the A.B. in history with teacher certification and the B.S. in education with an emphasis in social studies.

### **General Education Requirements**

History majors must meet the university and college general education requirements. Courses in history may be used to meet the university's social sciences requirement. Students may take any language to fulfill the college's foreign language requirement. Majors may not take required history courses pass-fail.

### **Degree Requirements**

Students are encouraged to take programs which combine breadth of coverage with intensity. Requirements include:

Western Civilization  
History 31 and 32

Two American civilization courses from the following:

History 3, 4, 5, 71, or 120

History 292 or 293

A minimum of 18 hours from among the following areas;

- 1 Two 300-level courses in European history
- 2 Two 300-level United States history courses
- 3 One 300-level history course:  
History 316, 361, 362, 371a, 371b, 371c, 328, 329, or 399

An additional 300-level course and one further elective in history, except History 265, fulfills the minimal program of 36 hours. No more than 15 hours at the 300 level may be taken in any one of the above three divisions. No more than 45 hours may be taken in history, and a minimum of 36 hours must be C or better work.

## Mathematical Sciences

### Related Areas

Since history is a discipline of breadth, it can be combined with serious work in any other discipline. Students could take courses in the humanities, social sciences, languages, and the natural sciences as complements to the history program. Students should consult with faculty advisers to select courses suitable to their individual interests.

### Bachelor of Arts with Teacher Certification

See the School of Education description within this section.

### Bachelor of Science in Education with an Emphasis in Social Studies

The requirements are the same as for the A.B. degree except students fulfill the School of Education general education requirements rather than those of the College of Arts and Sciences.

The Department of Mathematical Sciences offers work leading to the A.B. in mathematics and, in cooperation with the School of Education, the B.S. in secondary education with a major in mathematics.

The department is subdivided into four sections: mathematics, probability and statistics, computer science, and mathematics education. For additional information, consult the head of the appropriate section.

The program leading to the A.B. in mathematics is flexible, providing a broad introduction to the important branches of mathematics, but giving students the depth necessary to successfully pursue graduate study. The B.S. in education degree introduces students to those branches of mathematics most relevant to teaching secondary school mathematics.

### General Education Requirements

Majors must satisfy the university and college general education requirements. The college's foreign language requirement must be met in German, French, or Russian. All mathematics courses except Mathematics 02 and 03 may be used to meet the university's science and mathematics requirement. Majors may not take mathematics courses pass-fail, but may take courses from the related area requirement pass-fail. Students considering graduate study should consult their advisers about taking work pass-fail.

### Degree Requirements

Majors must complete at least ten mathematics courses with grades of C or better, including at least four courses numbered 250 or above in residence. Students must have a 2.0 overall grade point average in mathematics. Required courses include:

- 1 Mathematics 80, 175, 201, 202, 250, and 345
- 2 One of the following two-semester sequences:  
Mathematics 310 and 311, 320 and 321, 323 and 324, or 340 and 341
- 3 One of the following courses:  
Mathematics 310, 311, 316, or 380
- 4 One course each from two of the following areas:  
Algebra: Mathematics 335, 340, or 341  
Applications: Mathematics 303, 306, 320, 321, 323, 324, or 327



Geometry and Logic: Mathematics 358, 362, 364, 366, or 367

Many students are qualified, as a result of having studied calculus in high school, to begin their major with Mathematics 175 or 201; these students are urged to consult with a faculty member before planning their programs. Credit for Mathematics 80 will be granted to students who successfully complete Mathematics 175.

#### Related Area Requirements

To broaden student understanding of the sources and uses of mathematics, the department requires completion of all courses in any two of the following groups:

- 1 Biology 224 and 226
- 2 Two courses in biology at the 200 level or above, excluding Biology 224 and 226. At least one of the two semesters must include Biology 321, or Biology 242 and 244 (counted as one course).
- 3 Chemistry 11 and 12
- 4 Chemistry 231 and another 200-level or above chemistry course.
- 5 Two of the following:  
Mathematics 222, 322  
Business Administration 224
- 6 Economics 365 and 366
- 7 Philosophy 160, 250, and 360
- 8 Physics 111 and 112
- 9 Physics 221 and another 200-level or above physics course
- 10 Psychology 301 (for B.S. in secondary education majors only)

Students preparing for graduate study should take eight or nine mathematics courses at the junior-senior level. The department recommends the following courses: Mathematics 310, 311, 316, 340, 341, and 380

## Modern Foreign Languages

The Department of Modern Foreign Languages offers course work leading to the A.B. degree in French, German, or Spanish, as well as concentration in each for students seeking B.S. degrees in education. The department offers lower-level courses in Italian and Russian and also participates in a cooperative arrangement whereby UMSL students who wish to fulfill the language requirement in Greek, Latin, Hebrew, Chinese, Japanese, or Portuguese may take courses in these areas at neighboring institutions.

Graduates with foreign language degrees may elect to enter the fields of teaching, business, journalism and communication, or government, or to continue their work on the graduate level. Majors are urged to take substantial work in other departments and, if possible, to complete a double major. A combination of skills greatly increases career opportunities.

Department faculty members have either native or near-native ability in the foreign languages taught. The department arranges to provide the services of native speaking assistants, and language clubs provide students an opportunity to practice the language in a casual setting.

Language students enrolled at UMSL at least one semester who have studied the language at least one year may receive 3 to 6 credits in each of the languages offered for formal study abroad during the summer. Prior departmental consent must be obtained for summer courses abroad and students must present transcripts for evaluation.

#### General Education Requirements

Majors must satisfy the university and college general education requirements. Any literature or civilization course offered by the department may be used to meet the humanities requirement. Courses taken as part of the major may not be taken pass-fail.

#### Department Requirements

Students must have completed the second course in the language with a grade of C or better. Majors receiving D grades must repeat the course.

Students seeking the A.B. degree with a teaching certificate must meet the department requirements of at least 33 hours, excluding Language 1 and 2. No more than 45 hours, including Language 1 and 2, may be applied toward the major. In addition, students must take Course 264 in the selected language and fulfill the School of Education's professional secondary education requirements.

Students seeking the B.S. degree in education with emphasis in a foreign language must complete 30 hours (excluding Language 1 and 2), of which 12 must be at the 300 level. Students working toward a degree in elementary education, with related work in a foreign language, should consult the School of Education.

Demonstration of a high level of proficiency may reduce the number of hours required for the major. Native speakers should consult the department concerning placement.

Students may not take or repeat for either credit or quality points an elementary course if they have already completed a higher level course for which the elementary course, or its equivalent, is a prerequisite.

Transfer students majoring in one of the modern foreign languages must complete at UMSL a minimum of 12 graded hours in language courses at the 200 level or above with an average of 2.0 or better in these courses.

#### *French*

Each French major must complete the following courses: 101 or 103, 171 or 172, 180, 200, 280, 281, and four 300-level courses. The following courses are also strongly recommended: Anthropology 345, 346; English 131, 132; German 110; Spanish 110; History 352c; Fine Arts 101, 102, 241, or 242.

#### *German*

German majors must complete the following courses: 101, 102, 108, 201, 202, 208, 210, and four 300-level courses, including 308 and 399. Also recommended are these courses: Anthropology 346; English 120, 337; French 110 or 150; Spanish 110 or 150; History 353a or 353b; Philosophy 105.

#### *Spanish*

Each Spanish major must complete the following courses: 101 or 103, 171 or 172, 200, 210 or 211, 280, and four 300-level courses including 399. Strongly recommended are Anthropology 345, 346; English 131 or 132, 171 or 172; French 110 or 150; German 110; History 354, 371b, 371c; Political Science 253, 254; Philosophy 105, 185, 270; Art 227, 241, 242; Music 101 or 102.

## Philosophy

The Department of Philosophy offers three programs leading to the A.B. degree in philosophy: one plan for students seeking a general liberal arts education as their ultimate academic objective or as preparation for professional degrees, such as law; another to enable students to achieve a double major in philosophy and another discipline; and the third to prepare students to enter graduate school in philosophy.

Each program offers a balanced concentration through courses in the techniques of logical analysis, study of philosophical classics, and examination of selected problems. The study of philosophy encourages verbal precision, a heightened awareness of assumptions used in any discussion, and an attitude of both openmindedness and responsible criticism toward new and unusual ideas. These skills are particularly useful for students planning careers in law, business, or other fields combining qualitative and quantitative judgments.

While the department places some emphasis on the Anglo-American tradition of analysis and logic, the Continental schools of phenomenology and existentialism are also represented, as are the Marxist and Asian philosophic traditions.

### General Education Requirements

Majors must meet the university and college general education requirements. Any course in philosophy will satisfy the humanities requirement. Philosophy 170 also satisfies the college non-Euro-American requirement. Majors may not count philosophy courses taken pass-fail toward the degree requirements.

### Degree Requirements

Students must complete one of the following programs. Entering majors should consult with advisers as soon as possible. At least 30, but no more than 45, hours are required for a major.

### Program One

Designed to prepare students for graduate work in philosophy, the program requires:

- 1 Philosophy 160
- 2 At least three courses in the history of philosophy (181, 182, 183, 184, 185, 210, 301, 302, 305, 306, 307, 308, 370), representing at least two different historical periods (as defined by the 181-185 sequence), and at least one course at the 300 level.
- 3 At least one course from the following: Philosophy 225, 230, 235, 265, 285; and two of the following: Philosophy 250, 255, 270, 278, 280, 281. When appropriate, 380 and 390 may be used to satisfy one of these requirements.

Students in this program should take Greek, Latin, French, or German to satisfy the foreign language requirement.

### Program Two

Less restrictive, this program is intended for general liberal arts students or students whose special interests, such as prelaw preparation, do not fall clearly into any one traditional academic department. Requirements include:

- 1 Philosophy 160
- 2 At least two courses in the history of philosophy, as listed in Program One.
- 3 At least 15 hours at the 200 level or above.

### Program Three

Open only to students seeking a double major, the program requires:

- 1 Philosophy 60 or 160
- 2 At least 12 hours at the 200 level or above.

Qualified majors, with the department's consent, may earn departmental honors by completing at least 6, but no more than 9, hours of Philosophy 191 (Senior Thesis), submitting an acceptable thesis before the end of the senior year, and passing an oral examination. In such cases, the 30 hours required for the major will include the credit earned in Philosophy 291.

### Related Area Requirements

Majors are urged to acquire a familiarity with some other field above the introductory level.

## Physics

The Department of Physics offers course work leading to the A.B. in physics, the B.S. in physics, and, in cooperation with the School of Education, the A.B. in physics with teacher certification and the B.S. in education with an emphasis in physics.

The department offers junior and senior students opportunities to participate in the teaching and research of the department to help prepare them for the independent effort required in industry or graduate school. Faculty members are involved in such research areas as low temperature, solid state, molecular, and elementary particle physics.

### General Education Requirements

Majors must complete the university and college general education requirements. Any of the following courses may be used to satisfy the science requirement:

Astronomy 1, 11, or 12  
 Atmospheric Science 1  
 Geology 1 or 2  
 Physics 1, 170, or 172

### Degree Requirements

Students in the A.B. or B.S. programs must complete the following core curriculum:  
 Physics 10, 111, 112, 113, 200, 221, and 223  
 Mathematics 80, 122, 175, 201, and 302

Students are urged to begin the calculus sequence (Mathematics 80) as soon as possible.

### *Bachelor of Arts in Physics*

The A.B. program is tailored to students wishing to preserve the option for specialization in graduate school without sacrificing the advantages of a liberal arts education.

In addition to the core curriculum, students must take Physics 1 and at least two of the following courses:  
 Physics 225, 241, 282, or 331

Students with experience in digital computer programming may be excused from Mathematics 122. Chemistry 11 and 12, or equivalents, are required.

### *Bachelor of Science in Physics*

The B.S. degree provides students with three options: physics, astrophysics, or applied physics.

#### Physics Option

This option may be elected by students desiring a greater concentration in physics and mathematics, and is recommended for students wishing to enter graduate study in physics.

At least 45, but no more than 51, hours are required. In addition to the core curriculum, the following courses are required:  
 Physics 201, 225, 241, 311, 312, 331, 335, and two additional 300-level courses.  
 Mathematics 303 and 316.

Students with experience in digital computer programming may be excused from Mathematics 122. Additional hours in mathematics at the 200 level or above are highly recommended. Chemistry 11 and 12, or equivalents, are required.

#### Astrophysics Option

This option may be elected by students who wish an exposure to enter the aerospace industry or graduate studies in astrophysics.

At least 41, but no more than 51, hours must be taken. In addition to the core curriculum, the following courses are required:  
 Physics 225 and 241  
 Astronomy 101, 201, and two of the following:  
 1, 11, or 12  
 Mathematics 303

Additional hours of mathematics at the 300 level are recommended. Chemistry 11 or the equivalent is required.

#### Applied Physics Option

Students desiring careers in the research and development field may elect to take this option. The program prepares students for employment in technical industry or graduate study in applied or engineering sciences by a concentration on subjects such as electronics. All required courses in this option are offered in the evening. In some cases students may elect engineering courses from the University of Missouri-Rolla Graduate Engineering Center at UMSL.

At least 42, but no more than 49, hours are required. In addition to the core curriculum, the following courses are required: Physics 201, 241, 311, 312, and 325, and two of the following: 353, 354, 355, or 356  
Mathematics 303

Students with experience in digital computer programming may be excused from Mathematics 122. Additional hours of mathematics are recommended. Chemistry 11 or the equivalent is required, and additional hours in chemistry are recommended.

*Bachelor of Science in Education with an Emphasis in Physics*

This program is designed for students wishing to teach physics in secondary schools and gives a firm foundation in the history, philosophy, and principles of physics. Students must fulfill the School of Education's general education requirements. For details consult the physics department and the School of Education.

## Political Science

The Department of Political Science offers work leading to the A.B. degree in political science, and, in cooperation with the School of Education, the B.S. in education with an emphasis in social studies (see School of Education for details).

The programs are designed to prepare students for graduate work in any of the political science fields; for admission to law school (see prelaw program); for careers in local, state, and national government, the civil or foreign service or secondary education; and to provide a grounding in the social sciences as part of a liberal arts education. The department office has available publications about careers in political science.

Principal areas of concentration include urban and regional politics, political process and behavior, international politics, comparative politics, public law, public administration, and political theory.

Research in political science is assisted by UMSL's Center of Community and Metropolitan Studies, Center for International Studies, and Computer Center. The department is a member of the Inter-University Consortium for Political Research, providing students access to a wide range of survey data in American, European, and international politics.

Scholarship assistance is available to qualified students; contact the department for details.

### General Education Requirements

Majors must satisfy the university and college general education requirements. Political science courses may be used to satisfy the social sciences requirement. The foreign language requirement may be satisfied in any language. Students may count 6 hours in political science taken on pass-fail toward the major.

## Psychology

### **Degree Requirements**

Students must take at least 36, but no more than 45 hours, of political science, including Political Science 11 and 12. Students must also take at least one course in five of the following fields:

Public Law  
Political Process  
Public Administration  
Comparative Politics  
Theory and Methodology  
Urban and Regional Politics  
International Relations

Candidates for the B.S. in education with an emphasis in political science must meet the degree requirements of the School of Education. The minimum course work in political science is 30 hours rather than the 36 required for the A.B. degree.

### **Related Area Requirements**

Majors must complete at least 18 hours chosen from administration of justice, economics, history, psychology, or sociology and anthropology. Twelve hours must be completed in one discipline and 6 hours in a second. These hours may be used in partial satisfaction of the general education requirement in social sciences.

Students are encouraged to take at least one course in statistics or accounting. As early as possible, students should determine their educational objectives and consult with advisers regarding other recommended electives.

Four curriculum plans leading to the A.B. degree are offered to meet student needs: graduate school preparation, general psychology, child care and development specialization, and community mental health specialization.

In conjunction with course work in the department students have the opportunity to do research in a wide variety of areas, including animal and human learning, perception, physiological, personality-social, developmental, clinical, and community psychology.

### **General Education Requirements**

Majors must satisfy the university and college general education requirements. Courses in psychology may be used to meet the social sciences requirement. Students planning graduate work in psychology are strongly urged to satisfy the college foreign language requirement in French, German, or Russian. Majors may not take psychology courses pass-fail.

### **Degree Requirements**

At least 32, but no more than 45, hours must be completed in psychology. The following core curriculum is required:  
Psychology 10, 101, and 219

Students must take Mathematics 30 or the equivalent before taking Psychology 101. In addition to the core curriculum, at least seven more courses are required. The four areas of concentration specify as many as five of these seven courses. At least three courses must be numbered 192 or above. No more than 6 hours of readings courses beyond 192 and 193 may be counted toward the major.

### *Graduate School Preparation*

This program is designed for students planning to pursue doctoral studies in psychology. In addition to the core requirements, students must take Psychology 261, and one of the following laboratory courses:  
Psychology 214, 254, 255, 257, 258, or 265

Students are also encouraged to take Psychology 192 and 193.

## Sociology and Anthropology

*General Psychology Major*

This area is suited for students interested primarily in a good liberal education in psychology without any particular career or professional concentration. In addition to the core requirements, one of the following courses is required:  
Psychology 214, 254, 255, 257, 258, or 265

*Child Care and Development Specialization*

The program is ideal for double majors in education and psychology or for students interested in working with children in a variety of career fields. In addition to the core curriculum, students must take at least five of the following courses with at least two at the 200 level:  
Psychology 111, 150, 170, 171, 172, 205, 206, 216, 249, 256

*Community Mental Health Specialization*

Designed for students seeking careers in community activity, this program is especially suitable for double majors in another social science, particularly in social work and sociology. In addition to the core curriculum, students must take at least five of the following courses with at least two at the 200 level:  
Psychology 105, 145, 155, 156, 160, 225, 246, 254, 260, 265

The Department of Sociology and Anthropology offers work leading to the A.B. in anthropology, A.B. in sociology, A.B. in sociology with emphasis in social work, and, in cooperation with the School of Education, the B.S. in education with an emphasis in social studies (see School of Education for details).

Faculty stress the scientific and applied aspects of sociology, anthropology, and social work. Social forces and cultural traditions affecting the individual are studied from a scientific perspective, and first-hand exposure to their effects is stressed through community involvement. Throughout, the contributions of sociology and anthropology toward a well-rounded liberal arts education are emphasized.

The department's scientific approach is reflected in an emphasis on the development of adequate theoretical and methodological tools. In addition, there is strong emphasis in all three fields on the applied uses of sociological and anthropological insights and methods in a distinctly urban thrust. Many faculty members are engaged in research on urban-related issues and work with various urban agencies, particularly in the areas of crime, delinquency, social welfare, and education. Majors should obtain a copy of *Guide to Undergraduate Studies in Sociology/Anthropology* from their advisers to familiarize themselves with the degree programs, rules and regulations, and interests of faculty members.

**General Education Requirements**

Majors must satisfy the university and college general education requirements. Courses in sociology or anthropology may be used to meet the social sciences requirement. Any foreign language may be used to meet the language requirement. Department courses taken pass-fail may not be applied toward the major.

**Degree Requirements**

*Bachelor of Arts in Sociology*

Core Requirements:

Sociology 10, 110, 120 (or Mathematics 31 or 102), and 130

(Students planning to do graduate study are urged to take Sociology 120 rather than the mathematics option.)

At least 18 more hours of departmental courses must be taken, including at least 3 hours at the 300-level in sociology, exclusive of Sociology 350. No more than 3 hours in sociology and 3 hours in anthropology below the 100-level can count toward these 18 hours. Applied training through one or more practicum courses may be used as part of this requirement.

Related Area Requirements

Students should take at least 6 hours in one or more of the following areas: economics, political science, philosophy, and psychology. Majors expecting to continue their studies in graduate school are strongly advised to be well prepared in mathematics, computer science, and philosophy of science.

*Bachelor of Arts in Sociology with Emphasis in Social Service*

Students completing this degree may enter beginning positions as social workers or choose to enter professional schools of social work looking toward eventual careers in supervision, administration, research, and other specialized areas of practice.

Core requirements are:

Sociology 10, 120, and 130  
Social Work 100, 200, 210, 300a or 300b,  
320a, and 320b

At least 9 more hours must be taken in social work or sociology.

Related Area Requirements

Psychology 3 or 10  
Sociology 160 or Psychology 160  
Political Science 11 or Economics 40

Anthropology, biological science, and Spanish are strongly advised by social work schools.

*Bachelor of Arts in Anthropology*

Core Requirements:

Anthropology 5, 11, 291, 325, and 381  
Sociology 120

Students are required to take Philosophy 160, 250, or 255 before enrolling in Anthropology 291.

In addition, students must take at least 12, but no more than 25, hours of electives in the department. No more than 3 credit hours may be from courses below the 100-level.



## Certificate Programs

Through the Center for International Studies, the college offers certificate programs in East Asian, Latin American, European, and international studies. These programs, which combine course offerings from several departments, make it possible for students to earn the equivalent of a minor in a given area, in addition to their major.

In the junior or senior year, students seeking certificates must take an independent study course (3 hours) in which a research paper will be written focusing upon some aspect of the particular field or one of the fields offered in the program.

Interested students should petition for one of these certificates through the Center for International Studies in the first semester of the senior year. For further information, contact the center at 453-5753.

Following are the requirements for each program.

**East Asian Studies Certificate**

- 1 First and second year Chinese, Japanese, or other appropriate Asian language (20 hours taken in four semesters). Chinese and Japanese courses are available at Washington University for UMSL students.
- 2 History 61 and 62
- 3 One course in three of the following areas, a total of 9 hours:  
Music 9

Philosophy 170

Political Science 255, 359, 388 (359 or 388 when appropriate)

History 293, 328, 361, 362

**European Studies Certificate**

- 1 Four semesters of college work or the equivalent in a modern European foreign language.
- 2 History 32
- 3 One course each from at least four of the following areas, a total of 12 hours. Students should consult advisers at the center to determine how these courses can best be arranged to meet their interests.  
Economics 238, 239, 242

English 127, 128, 132, 310, 346, 364, 365, 373, 383

**Fine Arts:**

Art 221, 222, 226, 227, 241

Music 322, 323, 324, 325

History 31, 333, 334, 335, 336, 338, 339, 341a, 341b, 342b, 351f, 352c, 353b, 355c

**Modern Foreign Languages:**

French 110, 150, 210, 211, 281, 341, 342, 353, 354, 362, 371, 375

German 110, 150, 201, 202, 210, 315, 320, 345, 397, 398

Spanish 110, 150, 310, 315, 320, 321, 325

Philosophy 183, 184, 185, 305, 306

Political Science 251, \*341, 353, \*359, 384, \*388

\*When topic is appropriately European

**Latin American Studies Certificate**

- 1 13 credit hours or the equivalent in Spanish
- 2 History 71 or Spanish 211
- 3 One course from at least three of the following areas, a total of 12 hours:  
Anthropology 201, 209

Economics 243

History 371a, 371b, 371c

Political Science 253, 254, 359 (when dealing with Latin America)

Spanish 111, 211, 281, 340, 341, 345, 351, 360

**International Studies Certificate**

- 1 Satisfactory completion of the language requirements for the degree program in which enrolled
- 2 Political Science 180
- 3 One course from at least three of the following fields, a total of 12 hours:  
Anthropology 243, 245

Biology 120

Business Administration 380

Economics 230, 238, 331

## Preprofessional Programs

Geography 102

History 312, 328, 329, 338, 339, 342a, 342b

Political Science 80, 282, 285, 286, 381, 385, 388, 389

Although UMSL does not offer specific preprofessional majors in engineering, dentistry, journalism, law, medicine, or pharmacy, students may develop satisfactory preprofessional study programs from UMSL's academic offerings. With early and careful advising, students may develop a two-year study program in preparation for transfer into a professional program in the junior year, or they may select a major field of study and related area courses which provide strong undergraduate preparation for graduate professional study.

Students should seek preprofessional faculty advisers in their interest area early in their academic careers to insure development of sound, comprehensive study programs which fulfill the admission requirements of the professional program to which they wish to apply.

The following information on preprofessional study at UMSL is provided to give students minimal guidelines and assistance in planning a program.

### **Preengineering**

UMSL's preengineering program provides for a solid scientific base through requirements in mathematics, chemistry, physics, and communications. Flexibility is built into the program through engineering, science, and communication electives. Students who have chosen a specific engineering discipline must choose these electives in consultation with advisers so they can transfer to an engineering college in their junior year. Usually, transfer can be effected without loss of credit and with full standing.

Students also may remain at UMSL to pursue B.S. degrees in pure science or in an applied area of physics, mathematics, or chemistry. The program's built-in flexibility encourages students to experiment with various areas in engineering and applied science to find the most appropriate and rewarding directions to aim their talents.

Specific inquiries about the preengineering program should be addressed to: Director, Preengineering Program, Department of

Physics, University of Missouri-St. Louis, telephone 453-5934.

In addition to general admission requirements, prospective students must take a mathematics placement test, given at UMSL, the spring before enrollment.

Although there is no required pattern of high school units for admission to the program, students are urged to complete at least three units of mathematics, including units in algebra (excluding general mathematics) and trigonometry. Calculus, if available, is also recommended.

**Required Curriculum for Freshmen and Sophomores**

A total of 66 hours is required, including:

Chemistry: 11

Physics: 1, 111, and 112

Mathematics: 80, 175, 201, and 302

Communication: Mathematics 122, English 10, and 3 hours of electives

Engineering: 30, 85, 185, and 6 hours of engineering or science electives

Humanities and Social Sciences: 12 hours of electives

### **Prejournalism**

Students wishing to pursue a journalism degree should review the entrance requirements of the schools they would like to attend for information on suggested prejournalism courses of study.

Students seeking a journalism degree from the University of Missouri must complete their junior and senior years at the School of Journalism, University of Missouri-Columbia.

For entrance, students must present to the School of Journalism 60 credit hours (exclusive of physical education) with a cumulative grade point average of 2.25 on work completed after October 1, 1972, and a grade point average of 2.50. Satisfactory completion of an entrance test may be required.

The following studies are required for entrance to the School of Journalism:

1 Foreign language: Completion of a reading course beyond the equivalent of the intermediate level (generally 12 to 13 hours).

Completion of the 101 level courses, or four or more high school units in one foreign language fulfills this requirement.

2 Physical, behavioral, or biological science: 4 hours credit, including 1 hour of lab.

Mathematics 30 fulfills the requirement.

3 General economics: 3 credit hours.

Economics 50 or 51 satisfies the requirement.

4 American government: Minimum of 3 hours credit. Political Science 11 satisfies the requirement.

5 Literature: 6 hours, with at least 3 in the English language. English 12, 131, or 132 satisfies the requirement.

6 English composition: Completion, with a grade of A or B, English 65 or 160, or the equivalent. The equivalent of English 160 with a C average is accepted if a satisfactory grade is made on the English proficiency examination.

Recommended, but not required, are courses in American history, general sociology, general psychology, introductory philosophy, principles of marketing, elementary accounting, college algebra, and elements of college mathematics.

For additional information, or prejournalism advising, contact Spencer Allen, Director, Urban Journalism Center, at 453-5485.

### **Prelaw**

With few exceptions, admission to most accredited law schools is limited to students holding bachelor's degrees who, as early as possible in their senior year, take the Law SAT (LSAT) examination administered by the Educational Testing Service.

Law schools are searching primarily for candidates who have demonstrated not only a well-rounded educational background but also some evidence that they grasped well the ability to be analytical and critical, to think clearly, and to be able to articulate their thoughts. Students enter law with baccalaureate degrees ranging from political science to business to philosophy. For this reason, UMSL does not designate a series of courses for prelaw study. Most law schools, in effect, are looking for students who have shown throughout their collegiate careers that they know how to work and are capable of achieving academic excellence.

Most schools analyze cumulative grade point averages and LSAT scores for admission. Since admission requirements and fees vary, students should determine, as early as possible, the specific requirements of the schools to which they intend to apply.

UMSL has had success in placing its graduates in law schools throughout the nation. Although a law program is not offered at UMSL, the University of Missouri does have law schools at Columbia and Kansas City.

The prelaw adviser maintains a reasonably complete and up-to-date set of law school catalogs, information on the LSAT, and other information for student use. For further information and specific prelaw advising, contact Dr. Harry G. Mellman, Prewal Adviser, Department of Political Science, at 453-5591.

#### **Premedical Sciences Program**

Students wishing to enter medical, dental, or veterinary medicine schools should pursue the A.B. or B.S. degrees with majors in the disciplines of their choice, but they should take whatever additional courses may be necessary for admission.

Many medical schools recommend the following undergraduate courses: Biology 10, 224, and additional courses in development and/or physiology.

Chemistry 11, 12, 261, 262, 263, and additional courses in organic chemistry and quantitative analysis.

Mathematics, including calculus as appropriate for the major degree.

8 credits of physics, or as appropriate for the degree chosen.

Since professional school admission requirements vary, students are urged to consult the catalogs of the schools to which they intend to apply. Updated information may be found in the bulletin *Medical School Admission Requirements* (United States and Canada) for the current year, available from the Association of American Medical Colleges, One Dupont Circle, N.W., Washington, D.C. 20036, at \$4 per copy. The dean's office has a

copy available for student use within the office.

Since students are not confirmed for admission to professional schools until the science requirements for admission are fulfilled, students should meet the science requirements before the end of the junior year. To complete these requirements in time, premedical students should take Chemistry 11 and 12 during the freshman year.

Students should also take the required national standardized examination before or during the junior year. The examinations are Medical College Admission Test for premed students, Veterinarian Medical Aptitude Test for prevet students, and Dental Aptitude Test for pre dental students.

Each year the number of applicants to health profession schools greatly exceeds the number of available places. Therefore, students are encouraged to have alternate plans should they not gain entrance. Pharmacy, nursing, optometry, and laboratory technology may be considered as alternative fields.

For further information, testing dates, or premedical advising, contact the biology department at 453-5811 or the chemistry department at 453-5311.

#### **Prepharmacy**

Admission to a school of pharmacy usually requires one to two years of college work in specified areas. Most colleges of pharmacy recommend the 2-3 plan which includes two years of college work followed by three years of professional courses in the college of pharmacy. Since entrance requirements vary, students should consult the catalog of the college to which they intend to apply.

Following is a typical two-year sequence in prepharmacy which meets the admission requirements for the University of Missouri-Kansas City School of Pharmacy and the St. Louis College of Pharmacy.

## Additional Study Areas

*Freshman Year*

## First Semester

Chemistry 11  
 Mathematics 40  
 English 10  
 Physics 11

## Second Semester

Chemistry 12  
 English 12  
 Physics 12  
 3 hours of electives\*

*Sophomore Year*

## First Semester

Chemistry 261 and 263  
 Biology 10  
 6 hours of electives\*

## Second Semester

Chemistry 262  
 5 hours in a biology elective  
 6 hours of electives\*

\*Courses in statistics, psychology, speech, economics, and accounting are among those frequently required.

For additional information and prepharmacy advising, contact the chemistry department at 453-5311.

**Interdisciplinary Courses**

In addition to regular departmental offerings, the college also offers several interdisciplinary courses, listed in the description of courses. These courses bring together the resources of two or more disciplines to focus on topics which benefit from being studied from the point of view of more than one discipline. In many cases faculty from several departments teach an interdisciplinary course together, giving students the opportunity to experience faculty dialogue on issues in a cross-disciplinary fashion. Most interdisciplinary courses have no prerequisites. Freshman and sophomore students especially are encouraged to take these courses.

**Literature in Translation**

The following courses offered in the English and modern foreign languages departments do not require a reading knowledge of any foreign language. All may count toward fulfillment of the humanities requirement.

For additional information consult the department course descriptions. Prerequisites may be waived by consent of the department.

English 120, 125, 126, 128  
 French 110, 150  
 German 110, 150  
 Russian 110, 112  
 Spanish 110, 111, 150

**Religion/Women's Studies**

Although UMSL does not have religion or women's studies departments or offer degrees in these areas, a number of courses may be categorized under the heading of religion or women's studies although they are housed in various departments. These courses are listed for the benefit of students who may wish to take one or more courses in religion and/or women's studies as part of an academic program.

## School of Business Administration

### *Religion*

Anthropology 265  
 Art 206, 210  
 English 125  
 History 90, 331a, 332a, 334, 344a, 344b  
 Interdisciplinary 70  
 Music 9, 10, 321  
 Philosophy 102, 170, 323  
 Sociology 264

### *Women's Studies*

English 280  
 History 320, 321  
 Interdisciplinary 50  
 Psychology 130

In addition, other courses such as English 13 and 129, History 90, or similar courses in other departments may occasionally offer topics appropriate to women's studies. Students should check the *Schedule of Courses* each semester for such courses.

The School of Business Administration offers work leading to the B.S. in Business Administration (BSBA). The program is accredited by the American Assembly of Collegiate Schools of Business, recognized as the authorized professional accrediting body in collegiate business education.

The BSBA program represents a concentrated professional education in business. Professional credit requirements have been kept to a minimum to allow for a balanced liberal arts-professional program. Students have ample opportunity to develop an area of professional concentration in accounting, economics, finance, general management, management information systems, marketing, or quantitative science.

### **University Year for Action**

The school participates with the Federal ACTION Agency in providing opportunities for a small group of select students to spend an academic year working as interns in several business and economic development agencies in the St. Louis metropolitan area. The program combines regular classroom and internship credit for a full year's academic credit, and provides junior and senior students an opportunity to test, in a practical setting, some of their university-gained knowledge. Students in the program receive a nominal monthly stipend from the federal government.

### **Career Opportunities**

The current economic climate appears to favor students with business training. Business school graduates, males and females alike, are placed at entry-levels in areas requiring accounting, finance, management, computer science, marketing, and quantitative backgrounds.

### **Admission Requirements**

The school offers a two-year, junior-senior level program. Admission prerequisites are:

- 1 At least a 2.00 average for all work attempted at UMSL.
- 2 At least a 2.00 average for all qualifying work, with a minimum of 60 semester hours. Of those 60 hours, no more than 15 may be in introductory business administration courses (below the 200 level). Normally qualifying work includes Business Administration 131, 140, and

145 as well as Economics 50 and 51. It is important that students complete these courses by the end of the sophomore year since they are prerequisites to almost all upper-division work.

3 Completion of both the university and school general education requirements.

#### **Transfer Students**

Transfer students must meet all admission requirements; students failing to do so may be accepted for admission to the university, but not directly to the school.

#### **Degree Requirements**

The following summarizes all requirements for the BSBA degree:

*General Education Requirements*  
42 hours

The combined effect of the university general education requirements and those of the school is as follows:

- 1 English composition (a minimum grade of C, or demonstrated proficiency).
- 2 Three courses in the humanities chosen from art appreciation, music appreciation, philosophy, or literature.
- 3 Five courses in social science, including Economics 50 and 51, one course meeting the American history and government requirement, and two courses in behavioral science chosen from anthropology, psychology, or sociology.
- 4 Three courses in mathematics-science, including proficiency in Mathematics 102 (Finite Mathematics) and at least one lecture course in either a biological or physical science. (College algebra is a prerequisite to Mathematics 102.)
- 5 One course in a non-Euro-American requirement, as outlined in the College of Arts and Sciences description in this section.

#### *Language or Mathematics Option*

Students must choose one of the following options:

- 1 13 hours in one foreign language (counted as free electives since they do not meet any specific general education requirements).
- 2 A minimum of Mathematics 101 (Mathematics 80 should be taken by students planning to pursue any further calculus), and one quantitative course from the following: Business Administration 231, 308, 331, 375, 385

Economics 365  
Mathematics 175

#### *Required Business Courses*

45 hours

- 131 Elementary Statistics (3)
- 140 Fundamentals of Financial Accounting (3)
- 145 Managerial Accounting (3)
- 106 Basic Marketing (3)
- 156 Legal Environment of Business (3)
- 202 Fundamentals of Production (3)
- 204 Financial Management (3)
- 210 Management as a Behavioral Science I (3)
- 391 Business Policy and Administration (seminar) (3)

Business electives - a minimum of 18 hours.

#### *Free Electives*

33 hours

There are approximately 33 free elective hours. Up to 9 may be taken in the School of Business Administration; the remaining must be in other disciplines.

Total Required Hours: 120

#### **Pass-Fail Option**

Business students may take up to 24 hours pass-fail. Exempt from this option are specific degree requirements, including such courses as Economics 50 and 51, courses fulfilling the mathematics-language option, and required business courses. Up to 12 of the allowed 24 hours may be in business electives.

Business students transferring from other institutions must complete at least 21 hours in business at UMSL on a regular graded basis.

#### **Limitation on Discipline Concentration**

While a certain level of concentration in one of the various business fields is desirable, students should not concentrate their course selection to the extent of limiting their career flexibility. Therefore, no more than 15 hours beyond required courses are allowed in any discipline, with the exception of accounting, in which 18 hours beyond required courses are allowed. The combined hours in business and economics courses may not exceed 78.

## School of Education

The School of Education offers work leading to the B.S. in education with specialization in any of the following: early childhood education, elementary education, special education, and secondary education. In cooperation with other schools and colleges of the university, the school provides a program for students pursuing other degrees but planning on a teaching career in secondary education. The school is divided into three departments, each offering course work toward one or more of these areas.

UMSL, through the School of Education, is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary school teachers and school service personnel.

### Types of Admission

Students who wish to become teachers must be aware of two types of admission that pertain to them. One is admission to the School of Education, the other is admission to the teacher education program. These serve completely different purposes and are separate procedures handled by different offices.

### Admission to the School of Education

After completing two years of college work at an accredited institution, students intending to teach in elementary, early childhood, special education, business education, or physical education settings must apply for admission to the School of Education. Students intending to teach in other secondary school classrooms may elect to pursue the B.S. in education or to receive degrees from other university colleges and schools and meet teacher certification requirements. Students admitted to the school must also be admitted to the teacher education program.

Application to the school is processed through the admissions office. Eligibility is based upon the following criteria:

- 1 Satisfactory completion of two years of college work, with a minimum of 60 semester hours with a 2.0 or above grade point average.
- 2 Minimum deficiencies in general education. Students may not have more than 9 hours of deficiencies in general education.
- 3 Completion of the specific prerequisites and/or other special requirements of the

curriculum areas for which students are applying.

### Admission to the Teacher Education Program

All students who wish to become teachers must be admitted to the teacher education program regardless of the college or school in which they are enrolled. The admission program requires student action at three stages or levels:

#### Level I

After completing 30 semester hours, students should apply for admission to candidacy. The application requires health information, reasons for becoming a teacher, previous experiences working with children and/or youth, and grades received in university-level courses. Upon favorable action by the Teacher Education Council, students will be accepted as official candidates for admission to the program.

#### Level II

At the conclusion of 60 hours, official candidates apply for formal admission to the program. Admission requirements include a minimum of 60 hours of approved course work with a 2.0 grade point average and completion of Education 101 or the equivalent with a grade of C or better. Students must also submit an Affidavit of Moral Character. Students and their advisers are notified of their status by the Teacher Education Council. Note: A 2.2 grade point average is required for admission to student teaching.

Application forms for Levels I and II and Affidavit of Moral Character may be obtained in the Office of Teacher Education Advisement and Certification, 461 SSBE. Students are responsible for making application at both levels.

#### Level III

Students must make formal application for admission to student teaching at least one full semester before they plan to do their student teaching. Applications must be filed during the periods designated by the Office of Clinical Experiences 461, SSBE. Application forms are available in that office during the first four weeks of the semester before the one in which students plan to do their student teaching.



Upon receipt, formal applications are checked to ensure students have met the following requirements:

- 1 Full admission to the teacher education program.
- 2 Completion of 90 hours of approved course work.
- 3 A cumulative grade point average of 2.2 or above by the semester prior to the one in which students plan to do their student teaching. The 2.2 cumulative grade point average must be maintained in the next semester, too.
- 4 Completion of general education requirements and near completion of course requirements in the teaching major.
- 5 A grade of C or better in all professional education courses so designated. Lists of these courses are available in the teacher education advisement and certification and clinical experiences offices, and from advisers.
- 6 Satisfactory recommendations by students' teaching area representatives in the teacher education program.
- 7 Completion of prerequisite courses in professional education and psychology:  
Business Education  
Education 101, 163, 231, 232, 235, 236, 237, and 238  
Psychology 171

Early Childhood Education  
Education 101, 140, 150, 302, 315, 316, 317, 318, and 325  
Psychology 170

Elementary Education  
Education 101, 140, 150, 151, 152, 153, 302, and 325  
Psychology 170

Physical Education  
Elementary School Option:  
Education 101, 108, 140, 155, 200, and eight of the following courses:  
Education 103, 104, 105, 110, 202, 203, 204, 206, 207, 216  
Psychology 170  
Secondary School Option:  
Education 101, 109, 155, 163, 200, and nine of the following courses:  
Education 102, 103, 104, 105, 106, 202, 203, 204, 205, 206, 207  
Psychology 171

Secondary Education  
Education 101, 163, 365 (English education only).  
Psychology 171

Special Education  
Education 101, 140, 150, 151, 152, 153, 240, 302, 311, 313, and 325  
Psychology 170

Note: Students in business education, physical education, and secondary education are strongly urged to take Education 302 before student teaching. Special education students are advised to complete Education 310, 312, 369, and 390 before student teaching.  
8 Completion at UMSL of no less than 12 hours of approved course work.  
9 Grade point average of 2.2 in the teaching field (secondary education students only).

A Missouri School Personnel Health Certificate signed by a physician and a chest X-ray report, both valid for the year in which students do their student teaching, must accompany the application forms. Missouri School Personnel Health Certificates are available in the Office of Clinical Experiences.

#### General Education Requirements

Students in the School of Education must meet university and departmental general education requirements specified for their degrees.

#### Special Certification Requirement

After July 1, 1976, every student seeking a teaching certificate must satisfactorily complete Education 313, The Psychology and Education of Exceptional Individuals. This course meets the requirements of Missouri law mandating such a course before any new teaching certificate may be issued.

#### Certification

In cooperation with the Missouri State Department of Elementary and Secondary Education, the school is responsible for issuing teaching certificates to students completing B.S. in education degree requirements, recommending for certification students completing degrees in other UMSL colleges and schools and all certification requirements, and advising and ultimately

recommending for certification those postdegree students who meet requirements.

By completion of undergraduate programs at UMSL, certification may be obtained in the following fields: elementary education, early childhood education, special education (EMR), music education, and physical education, as well as the secondary education areas of biology, business education, chemistry, English, foreign language (French, German, Spanish), mathematics, physics, and social studies. Graduate programs leading to certification in counseling, reading, school administration (elementary and secondary principal), and special education (ED and LD) are also available.

For further information regarding certification, contact the Office of Teacher Education Advisement and Certification.

#### **Application for Degree and/or Certificate**

Candidates for the B.S. in education degree must complete degree and certificate application forms in the Office of Teacher Education Advisement and Certification when they apply for admission to student teaching or during the semester before the one in which they expect to finish degree requirements.

Students seeking the A.B. degree with teacher certification must fill out a state certification form with the office during the last month of the semester in which their requirements will be completed.

#### **Student Teaching**

When students are admitted to student teaching, the Office of Clinical Experiences works out assignments with appropriate school district officials. Students should not contact school officials or teachers about possible student teaching assignments. Failure to observe this request is grounds for removal from student teaching.

Student teaching, which must be done in residence, is not offered during the summer or in the evening. While enrolled in student teaching, students may not carry more than 15 semester hours, 6 of which are in student teaching (Education 251, 252, or 271). The

student teaching seminar is an integral and regularly scheduled part of the student teaching course for students in early childhood, elementary, and special education programs.

For further information about student teaching policies and procedures, contact the Office of Clinical Experiences.

The school maintains for student use the Teacher Education Resource Center, 461 SSBE, and the Education Services Center, 427 SSBE. The Teacher Education Resource Center has three major components: the instructional materials laboratory, the instructional media laboratory, and the instructional television laboratory. Questions about any of the laboratories should be directed to the Teacher Education Resource Center, 461 SSBE. The Educational Services Center is designed for a wide variety of on-campus clinical experiences in several teacher education curricula and at present houses the Reading Clinic and Counselor Education Clinic.

**Administration, Foundations,  
and Secondary Education**

The Department of Administration, Foundations, and Secondary Education (AFSE) coordinates programs that prepare students for teaching in secondary schools (grades 7-12). A special feature of these programs is the close interdisciplinary cooperation between the professional school and other university departments. The business education major is offered within the School of Education.

Students may choose to pursue the bachelor's degree in arts and sciences plus certification or the bachelor of science in education degree which includes Missouri certification. Business education students have only the latter option.

**Interdisciplinary Program**

In addition to the university general education requirements, secondary education candidates must fulfill the following requirements.

*Program Requirements*

24 hours in education and psychology courses meeting the state professional education standards:  
Education 101, 163, 271, 302, and 313  
Psychology 171  
(Postdegree certification students may take Education 322 in lieu of 101.)

*Teaching Fields*

30 to 40 hours of specific subject requirements in one of the following fields: English, foreign language (French, German, Spanish), math, music, science (biology, chemistry, physics), or social studies education. Social studies students must complete a major in one of the following disciplines: economics, history, political science, psychology, or sociology, and meet these minimum social science requirements: American history, 9 hours; European or world history, 9 hours; United States and/or state government, 6 hours; economics, 3 hours; sociology, 3 hours; geography, 3 hours.

*Electives*

17-27 hours

Total: 120 hours

**Business Education**

In addition to the university general education requirements, majors must complete the following:

*Program Requirements*

21 hours required:  
Education 101, 163, 261, 271, 302, and 313  
Psychology 171  
(Postdegree certification students may take Education 322 in lieu of 101.)

*Academic Major*

33 hours required:  
The requirements include work in secretarial training and business administration.  
Education 231, 232, 235, 236, 237, and 238  
Business Administration 106, 140, 340, and 156 or 256  
Economics 51

*Electives*

21 hours to be selected only after consulting with an adviser.

Total: 120 hours

## Behavioral Studies

The Department of Behavioral Studies coordinates work in educational psychology, counseling, physical education, special education, and related areas. Programs leading to the B.S. in education degree are available in physical education and special education.

Two options are open to physical education majors: elementary or secondary school physical education. Students thinking of physical education careers are urged to give careful consideration to teaching at the elementary school level.

The special education program prepares students to teach educable mentally retarded children. Students also receive certification as regular elementary or secondary school teachers upon completion of the curriculum.

### Physical Education

*General Education Requirements*  
39 hours required:

English  
Proficiency or English 10  
Speech 101 (recommended)

Mathematics and Science (three courses)  
Proficiency or Mathematics 02  
Chemistry 1, Biology 1, and Biology 3 (recommended)

Humanities (three courses) (9 hours)

Social Sciences  
3 courses, including Psychology 3 and one American history or government course meeting the university requirement.

*Electives*  
7-10 hours

*Program Requirements*  
Students must meet established proficiency levels in the following areas: aquatics (Life Saving Certificate), gymnastics (floor exercise), dance (ballroom dance), lifetime sports (tennis, golf, and bowling), and team sports (basketball, volleyball, and soccer). Proficiency levels may be satisfied through independent study, sports instruction, or workshops. Generally students have two years to complete

these requirements, necessary for entry into the corresponding analysis and teaching course. No credit hours are granted for satisfying this requirement.

The following theory of physical education courses, totaling 22 hours, are required: Education 200, 202, 203, 204, 205, 206, and 207

### Elementary School Option

#### *Option Requirements*

The following courses concerning laboratory analysis in physical education, totaling 21 hours, are required:  
Education 103, 104, 105, 108, 110, 155, and 216

#### *Program Requirements*

21 hours required:  
Education 101, 140, 251, 268, 302, and 313

Total: 120 hours

### Secondary School Option

#### *Option Requirements*

The following courses in laboratory analysis in physical education, totaling 21 hours, are required:  
Education 102, 103, 104, 105, 106, 109, and 155

#### *Program Requirements*

21 hours required:  
Education 101, 163, 268, 271, 302, and 313

Total: 120 hours

### Special Education

#### *General Education Requirements*

46 hours required:

English and Speech (6 hours)  
English 10 and 3 hours of speech

Mathematics (6 hours)  
Mathematics 50 and 151 (No credit toward graduation granted for Mathematics 15 unless both Mathematics 50 and 151 are completed.)

Science (8 hours)  
3 hours each in biological and physical science courses, and one two-hour science lab.

Humanities (8 hours)  
 Music 134 plus two courses chosen from art, music, philosophy, and literature.

Social Science (15 hours)  
 Psychology 3 and 170  
 Political Science 11, 170, or 176  
 History 3, 4, or 5 (6 hours)

Geography 101

*Related Area Requirements*  
 12 hours required:  
 Education 110, 137, 139, and 155

*Program Requirements*  
 24 hours required:  
 Education 101, 140, 150, 151, 152, 153, 302, and 325  
 (Postdegree certification students may take Education 322 in lieu of 101.)

*Special Education Requirements*  
 27 hours required:  
 Education 240, 252, 310, 311, 312, 313, 369, and 390

*Electives*  
 12 hours

Total: 120 hours

With the adviser's consent, students may omit one of the following: Education 110, 137, 139, 151, 152, or 155. However, students also wishing to become certificated in early childhood education must take all of these courses.

## Childhood Education

The Department of Childhood Education coordinates programs leading to the B.S. in education degree in early childhood education or elementary education. A special feature of these programs is the many opportunities to work with children in schools as part of the professional course work.

### General Education Requirements

The following 43 hours are required in both programs:

*English and Speech (6 hours)*  
 English 10  
 3 hours of speech

*Mathematics (6 hours)*  
 Mathematics 50 and 151 (No credit toward graduation is granted for Mathematics 15 unless both Mathematics 50 and 151 are completed.)

*Science (8 hours)*  
 3 hours each in biological and physical science courses and 2 hours of a science lab.

*Humanities (8 hours)*  
 Music 134 plus two courses from art, music, philosophy, and literature.

*Social Science (15 hours)*  
 Psychology 3 and 170  
 Political Science 11, 170, or 176 (3 hours)  
 History 3, 4, and 5 (6 hours)

### Early Childhood Education

The early childhood program is especially designed for students wishing to teach kindergarten and grades one through three. Students electing this program are urged to use electives to complete the general elementary education requirements, thus giving them a wide range of teaching opportunities.

*General Education Requirements*  
 In addition to the general education requirements, students must also take Sociology 224.

*Area of Concentration*  
 12 hours in the humanities, social or natural sciences, and mathematics. Courses selected must be numbered 100 or above and may not be used to meet the professional education

## Evening College

requirements. Courses may not be taken in more than three departments.

### *Program Requirements*

36 hours required:

Education 101, 140, 150, 251, 302, 313, 315, 316, 317 (or 151), 318 (or 152), and 325  
(Postdegree certification students may take Education 322 in lieu of 101.)

### *Electives*

26 hours

Total: 120 hours

### **Elementary Education**

The elementary education curriculum prepares students to teach in grades kindergarten through six and nondepartmentalized grades seven and eight.

### *General Education Requirements*

In addition to the general education requirements, students must also take Geography 101.

### *Area of Concentration*

12 hours in the humanities, social or natural sciences, and mathematics. Courses selected must be numbered 100 or above and may not be used to meet requirements in professional education or related areas. Courses may not be taken in more than three departments.

### *Related Areas Requirements*

12 hours required:  
Education 110, 137, 139, and 155

### *Program Requirements*

33 hours required:

Education 101, 140, 150, 151, 152, 153, 251, 302, 313, and 325  
(Postdegree certification students may take Education 322 in lieu of 101.)

### *Electives*

18 hours

Total: 120 hours

The Evening College offers work leading to the A.B., B.S., and Bachelor of General Studies (BGS) degrees for students, who for various circumstances, cannot attend day classes. In addition, persons not wishing to pursue degree work, but who want to maintain their professional competence or broaden their educational background, will find a broad array of courses which may be taken for credit or as audit.

Courses are offered in twenty-four academic areas, including administration of justice, anthropology, art, astronomy, biology, business administration, chemistry, economics, education, English, French, geography, geology, German, history, mathematics, music, philosophy, physics, political science, psychology, sociology, Spanish, and speech. Preprofessional courses are also available for most professional degrees.

Recognizing the value of continuing education and career advancement, many St. Louis institutions, businesses, and industries encourage their employees to avail themselves of the educational opportunities offered by the Evening College. The Veterans Administration has approved either full-or part-time study for educational benefits.

Since most Evening College students are employed full-time, they normally carry less than a full academic load. However, to enable students to carry as many courses as they wish, evening classes are scheduled between 5:30 and 9:35 pm. Classes and degree programs are conducted according to the same standards as the day program. The library, laboratories, cafeteria, bookstore, health service, placement service, admissions office, and cashier's office are available in the evening.

### **Bachelor of Arts**

Majors available for the A.B. degree are biology, chemistry, economics, English, history, mathematics, physics, political science, psychology, and sociology. For further information, consult the appropriate departmental section.

**Bachelor of Science**

The B.S. degree is available in administration of justice, business administration, chemistry, economics, education, and physics (with an applied physics option). For further information, consult the appropriate departmental or school section.

**Bachelor of General Studies**

The BGS degree is offered only through the Evening College. It is designed to provide mature students with a meaningful alternative to traditional degree programs. It appeals to a variety of students whose circumstances, goals, and aspirations are different from those of the "typical" college student. The BGS program provides the flexibility needed to enable students, with careful advisement, to develop individualized programs of study.

*Admission Requirements*

Students must be admitted to the Evening College, and must complete an application for admission to the program. Applications must be approved by the General Studies Committee and the Evening College dean.

## Criteria for admission are:

- 1 Students must be mature and their programs of study reasonable.
- 2 Students should have a broad education and must have demonstrated the equivalent of academic proficiency required for any other undergraduate degree at UMSL.
- 3 Study programs should be structured to meet students' unique educational goals and should not be readily available under any other UMSL degree program.
- 4 That recipients of the degree be better qualified because of the degree to deal with their life goals than if they had some other degree.

*General Education Requirements*

Students must meet the university general education requirements.

*Personal Emphasis Area*

In consultation with an adviser, students shall develop a personal emphasis area of at least 30 hours that meet their educational goals. Regardless of the focus, theme, or purpose, the personal emphasis area should result from self-examination, and contribute to a

self-realization and an advanced level of academic competence and achievement. The study program must be approved by the faculty adviser, dean, and General Studies Committee. Students and advisers periodically review the progress toward attaining the goal or objective and make appropriate modifications where necessary, subject to the dean's approval.

*Hour and Grade Requirements*

The degree requires completion of 120 semester hours with a 2.0 grade point average overall and in the personal emphasis area. No more than 30 hours may be taken in any one department without written consent of the department chairperson. At least 45 hours must be earned in courses beyond the introductory level. At least 24 hours of graded credit must be completed in residence at UMSL, of which at least 15 must be in the personal emphasis area. No more than 24 hours may be taken pass-fail.

**Credit for Experience, Special Projects, Examinations, and Nontraditional Forms of Study**

Credit may be earned through the College Level Examination Program in accordance with university policy or through examinations proposed or approved by university departments. Credit may also be earned through correspondence study, supervised independent research study, and college level courses offered by television or similar education media. Students are responsible for obtaining approval for credit applied under this option.

Students may also receive credit for vocational experience, community service projects, or cultural activities after they have completed 24 hours of course work in residence.

Credit may be granted for vocational experience when related to the personal emphasis area. Credit cannot exceed 3 semester hours for each year of experience, and, only in exceptional circumstances, up to a maximum of 12 hours. Petitions for vocational experience credit must be accompanied by a job description verified by the employer or similar appropriate evidence. Credit may be granted only upon

## Reserve Officers Training Corps

recommendation of the adviser and approval of the dean and the General Studies Committee.

Credit not exceeding 6 hours may be earned for participation in approved community service projects or cultural activities. The projects or activities must be formulated by the student and carried out under the supervision of a faculty member with the approval of the adviser, dean, and General Studies Committee. Students must submit a written report approved by the supervisor upon completion of the projects or activities.

### **Academic Advising and Program Planning**

New students are encouraged to consult with an academic adviser to help develop programs appropriate to their needs. Appointments may be made by calling the Evening College.

Transfer students or students with 40 or more semester hours who wish to be assigned advisers and to graduate from the Evening College must file declaration of degree candidacy forms.

### **Vocational Counseling and Career Planning**

Professional counselors with extensive experience in adult interests and motivations are available to help students make vocational choices or for indepth personal counseling. Vocational and educational counseling involving the use of psychological tests is available to students at no cost. Career counseling extending over a longer period of time is also available. For an appointment, call the Evening College office.

Students interested in officer education programs may enroll in the Army ROTC program hosted by Washington University or the Air Force ROTC program sponsored by Parks College of St. Louis University. The programs provide undergraduate students the opportunity to combine academic study with a military officer's training program.

For further information concerning these programs, contact Professor of Military Science, Washington University, telephone 863-0100, extension 4662; or Professor of Aerospace Studies, Parks College of St. Louis University, telephone 436-1695, extension 58.

Courses offered by these programs are listed in the course description section.



**Programs at Other Universities**

Unless otherwise stated, students interested in one of the following programs should contact the admissions office at the school where the program is offered.

**Nebraska**

The University of Nebraska in Lincoln offers a program for Missouri residents in architecture (quota twelve) where students may pursue a bachelor of architecture degree.

**Illinois**

A cooperative agreement exists between Southern Illinois University-Edwardsville and UMSL which permits students of one institution to take courses at the other institution as a regular part of their academic program. For further information consult the registrar's office or the dean's office.

**Kansas**

The following programs are offered to Missouri residents at various Kansas universities:  
Aeronautical engineering, Wichita State University, Wichita, with a B.S. in aeronautical engineering.

Architecture, University of Kansas, Lawrence, with a bachelor of architecture or a B.S. in architectural engineering.

Architecture, Kansas State University, Manhattan, with a bachelor of architecture, B.S. in building construction, or B.S. in landscape architecture.

Grain milling and technology, Kansas State University, Manhattan, with a B.S. in feed science and management, milling science and management, bakery science and management, or engineering management.

Nuclear engineering, Kansas State University, Manhattan, with a B.S. in nuclear engineering.

**Graduate  
Studies**

## Admission Application

This section includes admission requirements, academic policies, and degree programs and requirements for students seeking graduate degrees at UMSL.

Administered by the Graduate School, graduate study at UMSL embraces all study for degrees and certificates beyond the bachelor's degree.

From its beginnings, graduate education at UMSL has been guided by four broad purposes: development of excellence in scholarship; encouragement of creative productivity in research; fostering of the highest standards in professional competence and commitment; development of skill in the communication of knowledge. Responsive to the unique and comprehensive demands of the St. Louis region, the university has moved rapidly in the development of specialized facilities, a distinguished and creative faculty, and appropriate graduate programs to achieve these objectives.

Information on graduate degrees offered at UMSL can be found on the following pages:

**Master of Arts (M.A.)**

economics 72  
English 80  
history 80  
mathematics 82  
political science 83  
sociology 86

**Master of Business Administration (MBA) 69**

**Master of Education (M.Ed.) 73**

**Master of Public Policy Administration (MPPA) 85**

**Master of Science (M.S.)**

biology 68  
chemistry 70  
physics 82

**Doctor of Education (Ed.D.) 79**

**Doctor of Philosophy (Ph.D.)**

chemistry 70  
psychology 84

In most cases, master's degree programs can be completed through part-time study.

Students with bachelor's degrees or the equivalent from accredited colleges and universities may apply for admission to the Graduate School. Applications are reviewed by committees of the departments or schools in which students propose to do graduate study and by the Graduate School. Within limitations, students may be admitted to the Graduate School if their previous academic records and backgrounds suggest reasonable likelihood for success in their proposed programs. Students are admitted only upon recommendation of the department or school involved.

Inquiries concerning admission and requests for application forms should be sent to the admissions director. A list of admission requirements for the particular degree program is sent with each application form. Application forms for financial assistance are also sent on request.

To ensure consideration, completed admission applications with additional required materials should be filed with the admissions director by July 1 for the fall semester; December 1, winter semester; and May 1, summer session. Where applications are accompanied by financial aid requests, the last date for acceptance is usually March 15. Certain departments with heavy enrollments have earlier final acceptance dates, both for admission and financial assistance. Therefore, inquiries concerning Graduate School admission should be made as early as possible.

To be admitted, applicants must take the Graduate Record Examination (GRE) aptitude and advanced tests. In the MBA program, the Graduate Management Admission Test is required in place of the GRE. These examination scores must be presented in the admission application. Students who have not taken the examination should do so at the earliest possible test date (listed in the academic calendar). Applications for the examination must be in at least four weeks before the test date. Information and application forms may be obtained from the admissions office.

### **Matriculating Students**

Matriculating students are defined as students applying for admission to pursue approved graduate programs. Classifications within this category include regular, restricted, and provisional students.

#### **Regular Students**

Students may be admitted to pursue degree or certification programs as regular graduate students if their undergraduate and major field grade point averages are 2.75 or above and their test scores place them generally above the 50th percentile. Standards may be higher for particular programs.

Students with 2.5 to 2.75 undergraduate grade point averages may be admitted as regular students if there is strong supporting evidence in other areas: test scores, working in a major field, strong supporting letters, sharp improvement in undergraduate work, previous graduate work, evidence of academic maturity after completion of the bachelors' degree, or successful completion of a prescribed program such as unclassified undergraduate study at UMSL.

#### **Restricted Students**

Students with 2.5 to 2.75 undergraduate grade point averages who do not present supporting evidence sufficiently strong to justify admission as regular students may be admitted as restricted students. When students have completed no more than 12 hours of graduate course work, their records are reviewed, and either their status is changed to regular students or they are dropped from the program.

Students with undergraduate grade point averages below 2.5 are not normally admitted, unless there is strong supporting evidence in other areas, as described above. If students are admitted, they are admitted as restricted students, unless there is unusually strong support of other kinds, and they are subject to the same review.

Students with acceptable records but some deficiencies may be admitted as restricted students under admission conditions set by the department or school. When deficiencies

are removed, students are granted regular status. Recommendations to change students to regular status must be made by petition of the Graduate School.

#### **Provisional Students**

Students who seem qualified for admission but who have not submitted all required admission materials may be admitted provisionally, for one semester or the summer term only.

Courses in which students enroll apply in the regular way to degree programs. When all admission materials are reviewed, the admissions office sends a change of status form to the department or school to review before finally recommending regular or restricted admission or denial.

### **Nonmatriculating Students**

Nonmatriculating students are defined as students who wish to take graduate courses, but are not pursuing approved graduate programs at UMSL. Classifications within this category include special, nondegree students; intercampus exchange students; and Continuing Education-Extension, institute, and workshop students.

#### **Special, Nondegree Students**

Space permitting, students may be admitted as special, nondegree students if they are visiting students, are not intending to pursue degree or certificate programs, or are planning to enter programs not yet established.

Students must be accepted by the appropriate department or school and must generally meet requirements for admission as restricted students, except they are not required to submit test scores.

Course work completed by special, nondegree students is not regarded as completed within a degree program. Departmental approval must be received to apply such course work later to a degree program. It may not be counted as part of the degree residence requirement.

Special, nondegree students are not permitted to preenroll and are not mailed registration packets in advance. Students may register

after the regular registration period for matriculating students. Credit earned may be applied to certificate or degree programs but such work may not exceed more than one-third of the required program hours nor may it be used to satisfy degree residence requirements. The one-third limitation includes any transfer credit as well.

#### **Intercampus Exchange Students**

Graduate students regularly enrolled at another University of Missouri campus who are in good standing may enroll in graduate courses at UMSL as intercampus exchange students. Intercampus exchange students are not included in the quota of graduate students set by departments or schools. Registration regulations are the same as for special, nondegree students.

As soon as possible after each semester begins, the admissions office will send the names of these students, identified by field, to the Graduate School for circulation to the divisions involved.

Intercampus exchange students must have prior approval of their campus advisers to enroll in graduate courses at another University of Missouri campus.

#### **Continuing Education-Extension, Institute, and Workshop Students**

Students holding bachelor's degrees (or such qualifications as may be determined by workshop or institute directors) may participate in extension courses, institutes, and workshops. Credit granted for this participation is subject to the limitations set forth under graduate institutes and graduate workshops in *Regulations, Policies, and Procedures of the Graduate School*.

Participation in such programs is not to be construed in any way as admission to the Graduate School.

#### **Unclassified Students**

Students denied admission to the Graduate School may request admission to the university as unclassified students (not a Graduate School classification). These students do not meet the standards of regular, restricted, or special, nondegree students.

Unclassified students may not enroll in graduate courses and any 300-level undergraduate work completed cannot be accepted as part of a graduate degree program.

The department or school may define remedial undergraduate programs to give students the opportunity to demonstrate their ability to enter graduate programs, despite unsatisfactory records. Such remedial programs require some discriminating measures of performance and ability.

#### **Foreign Students**

Students from abroad who wish to study at UMSL may encounter many obstacles since the university is a nonresident campus designed to serve a population of local students.

Students must be competent in both written and spoken English; facility of the language cannot be gained at the same time that serious study is undertaken. Submission of TOEFL scores is strongly advised for students whose first language is not English.

No housing is available for students. The university is a commuter campus; students reside at home while attending day or evening classes at UMSL. Foreign students must make their own living arrangements, a serious problem not to be underestimated. Public transportation is not always readily available.

Married students with families must realize in addition to the above that the cost of living is high and part-time work is hard to find. Medical expenses may also be surprisingly high. While some scholarships are available, most are intended for United States students.

Foreign students are urged to take all these considerations into account before applying for admission.

## Enrollment

### Undergraduate Students

Undergraduate students with exceptional records at UMSL may be enrolled in the last year of their undergraduate programs. Graduate credit for such course work is given only if each course is approved in advance by the Graduate School on the recommendation of the department or school involved. To receive credit, students must be registered in the Graduate School, and must meet the requirements of their undergraduate college or school.

Students graduating with an excess of undergraduate credits without having registered in the Graduate School do not subsequently receive graduate credit for that work. The same credits may not, in any case, be applied to both undergraduate and graduate programs.

### Intercampus Exchange Program

Graduate students in good standing at any University of Missouri campus are normally permitted to enroll in graduate courses at UMSL as nonmatriculating graduate students. Separate applications must be filed every semester and approved by students' advisers, the Graduate School, and the UMSL admissions office. Application forms are available from graduate offices on students' home campuses.

### Postdoctoral Study

Individuals with doctoral degrees and similarly qualified persons wishing to pursue special studies at UMSL may be appointed postdoctoral research fellows or visiting fellows by the Graduate School dean on the recommendation of the appropriate university division. Such appointments normally include the right to use university facilities. Inquiries should be addressed to the Graduate School, appropriate department chairperson, or faculty member.

## Registration

### Permit to Enroll

New students qualified for admission to the Graduate School are issued permits to enroll and registration packets. Subsequently, registration materials are made available each term as long as students remain in good standing.

To remain in good standing, students must enroll during at least one term each calendar year. Students failing to do so who have not been granted leaves of absence are removed from the Graduate School enrollment list. In some programs, students may be required to enroll each term. Students discharged from the Graduate School or a graduate program who wish subsequently to continue must submit new admission applications.

### Preregistration

Enrolled students may preregister for the next term during regular preregistration periods, usually held in November and April. Registration is not complete until all university fees are paid. Students who preregister must pay their fees by announced deadlines or their registration is cancelled. Special, nondegree students and individuals who have graduated are not allowed to preregister.

### Maximum Course Load

In most graduate programs, the normal full-time course load is 9 to 12 hours during a regular semester and 5 to 6 hours during a summer session. In the MBA program, or with special permission in other programs, students may register for 15 hours.

Graduate students employed full-time may not register for more than 6 hours. Students employed part-time must adjust their course loads according to the number of hours employed.

### Petitioning Into or Out of a Course

Students must receive the approval of their advisers and the Graduate School dean to enter or withdraw from a course after registration.

### Entering a Course in Progress

Students wishing to enter a course in progress must have the approval of the instructor, adviser, and graduate dean. Only under

## Academic Policy

exceptional circumstances may students enter courses after the first week of the semester. A \$5 fee is charged for filing one or more course change petitions at any one time.

**Dropping a Course**

With the approval of their advisers and the Graduate School dean, students may drop courses before the end of the fourth week without receiving grades.

At the end of this period and until the end of twelve weeks (or from the third through the sixth weeks of the summer session), students may withdraw from courses with "Excused" grades providing they are passing the course and have the approval of the instructor, adviser, and graduate dean. Otherwise, a grade of F is given. Any students who stop attending classes without officially dropping courses also receive grades of F.

**Course Level**

In most degree programs the bulk of required course work must be taken at the 400 level. In all programs, at least one-half must be at the 400 level. Other courses must be taken at the 300 level.

In exceptional cases, with the adviser's permission, students may receive graduate credit for 200-level courses taken in a department other than the one offering their degree program.

**Institute and Workshop Courses**

Institute courses will carry graduate credit at the level they are designated (200, 300, or 400). Institute courses may be included as part of the degree program with the approval of the adviser, department chairperson, and graduate dean. However, they do not count toward the residency requirement. Institute credit, together with all other nonresident credit, may not exceed one-third of the required program hours.

**Foreign Language Requirement**

The Graduate School does not have any general foreign language requirements for advanced degrees. Where departments or schools establish levels of competence in one or more foreign languages, that competence shall be shown in one of the following ways, as determined by the department or school:

- 1 An examination given by the department or school.
- 2 Graduate School Foreign Language Test administered by the Educational Testing Service.
- 3 Satisfactory completion of a language course at a specified level.

Evidence that the foreign language requirement has been satisfied shall be presented to the Graduate School in each case.

**Grading Standards**

Grades in all courses carrying graduate credit are reported as A, B, C, or F. Graduate credit is not given for work taken pass-fail.

The grade of A is awarded for work of outstanding merit, B for work that is entirely satisfactory, and C for work that is acceptable

only to the limited extent of fulfilling advanced degree requirements. The grade of D is considered failing at the graduate level and is therefore not used for graduate students. A grade of A is assigned 4 points; B, 3 points; C, 2 points; and F, no points.

Delayed grades may be given when students' work is incomplete but otherwise worthy of credit. Delayed grades must be removed within two regular semesters after the time recorded or they automatically become F grades. In such cases, course instructors may subsequently change F grades to other grades when all work has been completed. Delayed grades recorded for courses in thesis or dissertation research are left as delayed grades until final, regular grades are reported by the instructor.

#### **Probation and Dismissal**

Graduate students enrolled in degree or certificate programs must maintain at least a 3.0 grade point average in all courses for which graduate credit is given. Students cannot graduate with less than a 3.0. Students whose grade point averages fall below this standard are placed on probation; students with averages below 2.0 are dismissed from the Graduate School. Upon the recommendation of the school or department, students may also be dismissed on the following conditions:

- 1 If their grade point averages fall below 3.0 when two-thirds of the required hours are completed.
- 2 If they have been on probation two or more semesters and the department or school concludes that they are not making acceptable progress toward a degree.

All students admitted on probation are automatically terminated after completion of 12 hours unless their adviser or division recommends otherwise.

Special, nondegree students must maintain the same standards required of students enrolled in degree or certificate programs. Upon recommendation of the school or department, special, nondegree students may be dismissed if their grade point averages fall below 3.0. They are dismissed if their grade point averages are below 3.0 at the end of 12 completed hours of study.

#### **Grade Point Average Calculation**

Only work taken while students are enrolled in the Graduate School is included in the grade point average. Neither extension work, institutes, or workshops, nor courses transferred from other universities or University of Missouri campuses are included, even though the courses may be included as part of the degree program. Graduate work taken for graduate credit by undergraduate students who have been dually enrolled is included.

All graduate-level courses are included in the grade point average, including courses which may not be part of the degree program. This includes all 300- and 400-level courses unless they are designated, in advance, "not for graduate credit." Courses at the 200-level are not included unless they are designated, in advance, "for graduate credit." Courses numbered 0 to 199 are not included.

#### **Withdrawal from the University**

Withdrawal from the university is arranged through the admissions office. Students leaving the campus without formally withdrawing are given grades of F in all courses.

#### **Leave of Absence**

Graduate students who are forced to interrupt their studies for a period of one or more years should request a leave of absence from the university. In consultation with the department and adviser, students should define the program modifications the leave of absence requires. Requests should indicate the reason for leaving and the expected date of return to the university. Approval of the Graduate School is required. A leave of absence does not affect the maximum time limitation set for a degree program, unless a specific exception is approved.



## Master's Degree Requirements

The following requirements and regulations apply to all students admitted to master's degree programs subsequent to the summer term, 1969. Each school, department, and area of concentration establishes its own requirements in addition to these. See the specific program description for these additional requirements. Students are responsible for determining that all requirements are met.

### Advisers

Graduate students are assigned advisers by the chairperson or director of graduate studies in students' major departments or schools. Before each semester's registration, students must consult with their advisers regarding their programs and courses.

### Transfer of Credit

A minimum of 30 semester hours carrying graduate credit is required for every master's degree program. With the approval of the department or school and the graduate dean, students may receive transfer credit for graduate courses completed at other accredited institutions. Once admitted to the Graduate School, students must obtain departmental approval before enrolling in courses for transfer credit from other institutions.

Courses taken pass-fail or by correspondence may not be included as part of the degree program.

Students who have completed course credits in certificate programs may transfer such credits into a master's degree program with the consent of the department or school as long as the credits fall within the time limitations set for master's degrees.

### Residence Requirement

Students must complete at least two-thirds of the required graduate credit for a master's degree program in residence following admission to the program. Except with special permission, residence must be completed in the last two-thirds of students' degree programs.

No period of full-time graduate study is required by the Graduate School for master's degrees, although particular degree programs may establish full-time study requirements.

### Time Limitation

All work included in a master's degree program must be completed within six years after initial enrollment in the program. Graduate work completed outside the six-year period may not be included in the degree program. In connection with an authorized leave of absence, an exception to the time limitation may be approved.

### Filing of Degree Program

Before completing one-half of the required hours in a degree program graduate students, in consultation with their advisers, should file with the graduate dean a program of studies which must be approved by the department or school involved and the graduate dean. Graduate students whose degree programs require more than 40 credit hours must file a program before completing two-thirds of the work required.

### Thesis and Comprehensive Examinations

Although not a general Graduate School requirement, a thesis may be required by departments in particular degree programs. Where required, the thesis is directed by a three-member committee of graduate faculty appointed by the graduate dean on the recommendation of the department or school.

Comprehensive examinations, oral, written, or both, are required in most master's degree programs. Examinations are administered by a committee of not less than three graduate faculty members appointed by the graduate dean on the recommendation of the department or school.

### Dual Master's Degrees

With approval of the department or school and the graduate dean, students who have completed one master's degree may transfer appropriate credits to a second master's degree program. The number of transferable credits may not exceed one-third of the credit hours required by the second program.

## Doctoral Degree Requirements

With approval of the departments or schools involved and the graduate dean, students may simultaneously pursue two master's degrees under the following conditions:

- 1 No more than 10 credit hours may be overlapping or common to both programs.
- 2 Students must obtain approval of both departments and schools and program advisers from both areas before they have completed 12 hours in either program.

### Graduation

Students must attend graduation unless formally excused in advance by the graduate dean.

The doctoral degree is based on evidence that candidates have achieved a high level of scholarship and proficiency in research. The proficiency of students and their ability to work independently are established by a series of qualifying and comprehensive examinations and by the quality of their dissertations.

### Cooperative Programs

In addition to the doctoral degree programs offered at UMSL, limited opportunities exist for work in cooperative programs with other University of Missouri campuses. Specific inquiries should be directed to the chairperson of the department offering the desired program.

Cooperative programs are due to a creation of a university-wide doctoral faculty composed of persons from all four campuses. The following cooperative doctoral degree guidelines have been established. The terms primary campus, graduate school, or dean refer to that granting the degree.

- 1 Students must be accepted by the department or area granting the degree and must comply with all rules and regulations of the primary graduate school and department or area.
- 2 Students' dissertation advisers must be members of the university-wide doctoral faculty.
- 3 Advisory, comprehensive, and final oral committees are appointed by the primary and cooperating campus in consultation with the graduate dean of the participating campus.

Committee members are normally recommended by advisers with approval of the appropriate director of graduate studies or department chairperson. In cases where students are on a cooperating campus, advisers may or may not be on the same campus. If advisers are on the cooperating campus, at least three of the five committee members are from the primary campus. Students must complete the primary campus' residency requirements. Exceptions to this rule must be justified fully with emphasis on quality and cost considerations and with the primary graduate dean's approval.

- 4 Selection of cooperating departments and program preparation must be completed as

early as possible and communicated via the primary graduate dean to individuals involved. Both graduate deans maintain program files relative to student progress with the respective graduate dean responsible for the quality of the program portion performed on his campus and under his faculty's jurisdiction.

5 Reporting the degree is the responsibility of the primary campus. The cooperating campus is given credit in terms of student credit hours and/or dissertation credits for work completed on that campus and shall provide suitable recognition of dissertation advisers and committee members.

#### **Advisers**

After admission to the Graduate School, students intending to qualify for the doctorate should so inform the department chairperson or division dean in the student's area of specialization. Upon acceptance by the appropriate area as an applicant for the doctorate, students, in consultation with the appropriate chairperson or dean and with the concurrence of the graduate dean, select advisers to assist in planning the program. The graduate dean appoints the adviser and notifies all concerned.

#### **Residence Requirement**

Minimal residence requirements for the doctoral degree are the equivalent of at least three academic years of full-time advanced study beyond the bachelor's degree. Additional requirements may be set at the department's discretion. Residence requirements may be fulfilled with part-time enrollment. At least two consecutive semesters of full-time residence work (9 hours or more each semester) on the UMSL campus must be included in the last two-thirds of the program. Summer session work does not meet this requirement.

An acceptable master's degree in the field can, in general, count for no more than the first year of residence. Under special circumstances additional residency may be transferred but two consecutive semesters are still required.

Doctoral degree work must be completed within eight years from admission as pre-candidates.

#### **Qualifying Examination**

Upon completion of approximately one year of residence requirements, the appropriate chairperson or dean and advisers may recommend to the graduate dean that students pursue work toward the doctorate as precandidate doctoral students. Such recommendations may be based upon a qualifying examination as well as students' academic records and personal programs. At this time students, with approval of the chairperson or dean and adviser, file a detailed program (excluding the dissertation topic) with the graduate dean. After approval, copies are filed with students, their advisers, chairpersons, and divisional deans.

#### **Advancement to Candidacy**

When students have completed the major portion of the doctoral program and fulfilled any language and/or research skill requirements established by the department, they may be eligible for advancement to candidacy for the doctoral degree. Advancement is based upon an examination or series of examinations administered by the department under the graduate dean's supervision. Examinations may be written, oral, or both. Upon successful completion, applicants are advanced to candidacy by the graduate dean on the department's recommendation.

#### **Dissertation Proposal**

At a time appropriate to the pattern of the study students are to file their dissertation proposals with the graduate dean on the appropriate forms.

When students are advanced to candidacy, they must remain in continuous enrollment until the degree is awarded or until the eight-year limitation has been reached. If students are actively engaged in degree work on campus, they shall enroll for credit commensurate with this activity. If away from campus, students shall enroll for at least one credit hour each semester and summer term.

#### **Dissertation Committee**

After acceptance as candidates, students, in consultation with their advisers and appropriate department members, ask the

graduate dean to appoint their dissertation committee. The committee consists of three graduate faculty members, including one member outside the discipline involved. Dissertation committee members are selected by students and their advisers in consultation with the department and with the concurrence of the graduate dean. The dissertation director must be a doctoral faculty member.

#### **Dissertation and Final Examination**

Directions regarding the dissertation format are available in the Graduate School Office.

Two copies of the dissertation, certified as complete and provisionally acceptable by all dissertation committee members, must be submitted to the Graduate School at least six weeks before commencement. The graduate dean may assign the dissertation to other readers on or off campus, or seek such other advice as the dean feels pertinent.

Upon preliminary acceptance of the dissertation, the Graduate School dean appoints the Defense of Dissertation Committee to conduct final examinations. The dean appoints to the oral examination committee members of the dissertation committee and such other members of the graduate faculty as seem appropriate.

Candidates must submit an abstract of the dissertation and a vita to the Graduate School one month before the oral examination.

The Defense of Dissertation Committee certifies the final acceptability of the dissertation to the graduate dean on the basis of a final examination open to all graduate faculty members.

#### **Probation and Dismissal**

Students are also subject to dismissal if any of the following conditions exist:

- 1 Failure to pass appropriate departmental cumulative examinations.
- 2 Failure to complete the required doctoral program work within eight years.
- 3 Failure to remove by the end of the second year deficiencies indicated by placement examinations.

A grade point average of 3.0 is required to graduate, but the essence of advanced graduate work is quality. Accumulation of graduate hours should not be confused with demonstration of the quality of scholarship which is expected by the graduate and doctoral faculties and the Graduate School.

#### **Graduation**

Candidates for all degrees must attend graduation unless excused in advance by the graduate dean.

## Biology

The biology department offers work leading to the M.S. in biology. Graduate studies are offered in a broad range of areas including genetics, molecular and cellular biology, ecology, plant systematics, animal behavior, development, and biochemistry. A small number of teaching assistantships are available for qualified applicants.

Program objectives are to provide the research-oriented training and education necessary for students to enter doctoral programs in biology; to develop professional biologists qualified to function in responsible technical positions; and to provide secondary school and junior college biology teachers with the professional training necessary to maintain and improve their teaching effectiveness.

### **Admission Requirements**

In addition to the Graduate School admission requirements, applicants should have completed undergraduate biology courses in at least four of the following areas: genetics, biochemistry, development, physiology, ecology or population biology, cell biology, microbiology, or evolution. Courses in organic chemistry, college physics, and calculus are also required, and a course in statistics is highly recommended.

Applicants must submit completed application and personal data forms, three letters of recommendation from undergraduate faculty, and transcripts of all previous work.

### **Degree Requirements**

In addition to the general master's degree requirements, students must complete the minimum of 30 graduate credit hours as follows: 15 or more credits at the 400 level; no more than 10 credits for research (Biology 490); and at least 4, but no more than 8, credits of graduate seminar (Biology 489).

### **Thesis**

Students must complete either an experimental or library thesis and present it in a seminar format to the department.

### **Advisers**

Students are responsible for finding their permanent thesis advisers. This should be done as soon as students decide upon the specialization area. Students, with their advisers, then recommend an appropriate research committee of three or more faculty for approval by the graduate committee. This group then plans a suitable program of research and course work and submits it to the graduate dean for approval. Research committees are also responsible for approving the thesis.

## School of Business Administration

The MBA program is designed to prepare students for positions of administrative responsibility. It also may provide an appropriate foundation for students contemplating doctoral work and eventual careers in college teaching or in research. The program is designed for students who have bachelor's degrees or the equivalent from accredited institutions, including those with undergraduate backgrounds in the sciences, humanities, or arts. Students with undergraduate degrees in business administration or economics may pursue modified degree programs.

A 60-hour or two-year program, the MBA curriculum provides training in the fundamental areas of administration. The core program is designed to generate a working knowledge of the concepts and interrelationships of four broad categories indigenous to management training:

- 1 The external, legal, economic, and political environment confronting organizations and the interrelated programs various organizations face in operating within their environments.
- 2 The operational atmosphere present in various types of organizations and the complexities of human behavior in context of organizational goals, vis-a-vis personal goals.
- 3 The broad functional facets of organizations including the terminology, concepts, and interrelationships among accounting, marketing, production, and economic aspects of organizations.
- 4 The introduction to prospective managers of increasingly important quantitative decision models and the growing role and influence of the computer sciences.

The total degree program is integrated by a course in policy formulation and administration in the last semester. There is no thesis requirement.

### Admission Requirements

Applicants must take the Graduate Management Admission Test instead of the GRE. Students' test scores, undergraduate grade point averages, and other relevant considerations will be reviewed in combination, rather than accepting or denying admission on the basis of a single criterion.

The Graduate Management Admission Test is given four times each year by the Educational Testing Service. A three and one-half hour aptitude test, it is designed to measure certain mental capabilities important in graduate business studies. It tests ability to read, understand, and reason logically with both verbal and quantitative material. The test is not a measure of achievement or knowledge in any specific subject matter, and students are neither required nor expected to have undergraduate business education to perform satisfactorily.

Applications for the examination must be made directly to the Educational Testing Service. Additional information may be obtained from the admissions adviser or the office of the graduate business studies director.

### Degree Requirements

Students must take at least 39 hours of graduate work within a six-year period, 30 hours of which must be taken while enrolled as MBA candidates at UMSL.

Candidates must take at least one course, required or elective, in each of the following areas: accounting, finance, marketing, management, and quantitative management science. Students are also required to have completed the equivalent of either Mathematics 101 (Survey Calculus) or 102 (Finite Math) with a C grade or better by the end of their first semester. Graduate credit is not given for these courses.

### Required Basic Courses

The following courses or their equivalents are required of all degree candidates:

- 410 Managerial Economic Analysis (3)
- 411 Analysis of National Economic Environment (3)
- 412 Public Policies Toward Business (3)
- 440 Financial Accounting: Theory and Practice (3)
- 450 Financial Management (3)
- 460 Administrative Processes (3)
- 470 Contemporary Marketing Concepts (3)
- 480 Computer Programming and Applications (3)
- 481 Statistical Analysis for Management Decisions (3)

- 482 Operations Research Methods (3)  
490 Policy Formulation and Administration (3)

*Required Second-Level Courses*

At least three of the following courses must be taken:

- 441 Concepts in Management Accounting (3)  
451 Advanced Financial Management (3)  
461 Organization Theory and Group Behavior (3)  
471 Marketing Planning and Strategy (3)  
483 Production and Operations Management (3)

*Electives*

The 18 hours of electives allow a modest degree of specialization in one area. Up to 9 hours beyond the second-level courses listed may be selected in one area. No more than 6 hours of electives may be taken at the 300 level. Nine of the elective hours may be taken outside the business school if students have advanced approval of their advisers for the specific courses desired.

**Previous Education**

Students with previous education in business must take at least 39 hours, regardless of the number of required courses which may be waived.

Depending upon students' undergraduate transcripts and the applicability of prior business courses, students with undergraduate background in business may waive up to 21 hours of the 60-hour program. As a consequence, the development and sequencing of study programs is individually determined by students and their advisers.

## Chemistry

The Department of Chemistry offers work leading to the M.S. degree in chemistry with or without a thesis and the Ph.D. degree in chemistry. In addition to a balanced program of basic graduate courses, the department offers special topics, courses, and seminars in current research areas. Research is being carried on in a number of areas by postdoctoral students, faculty members, and graduate and undergraduate students.

The department provides students with opportunities for strong interaction with faculty representing the various areas. Students and faculty working in one area consult freely with members in other areas. In addition, a number of joint research projects are currently under investigation involving faculty and students from two or more areas. The department currently includes seventeen full-time and five part-time members.

**Admission Requirements**

Individuals with at least the equivalent of an A.B. degree in chemistry or an M.S. degree in chemistry may be admitted to the Graduate School as applicants for the Ph.D. degree in chemistry. Students with bachelor's degrees in fields other than chemistry may be admitted to pursue graduate chemistry studies under the following conditions: they must make up background deficiencies, usually by taking undergraduate course work, and will not be considered applicants for the Ph.D. degree until such deficiencies have been removed. M.S. candidates must remove deficiencies within two years and Ph.D. candidates must complete all remedial work during the first calendar year of enrollment.

The department admissions committee, which makes admission recommendations to the chairperson, usually considers applicants' grade point averages and normally requires above average performance in all areas of chemistry (general, analytical, organic, physical, and inorganic) as well as physics and mathematics or other evidence of high aptitude for graduate work in chemistry. Applicants' GRE scores, letters of recommendation, and academic programs are also considered.

**Preliminary Advisement**

Incoming students are given a comprehensive placement examination, and, on the basis of the examination score and student needs and interests, the departmental graduate studies director prescribes a tentative plan of study in consultation with students. Students may be required to repeat undergraduate course work for no credit. Students must take chemistry courses for graduate credit at the 300 and 400 level, including one each in inorganic, organic, and physical chemistry, and courses outside the discipline as recommended by the department.

**Ph.D. Degree Requirements**

In addition to the Ph.D. requirements set forth by the Graduate School, students seeking the Ph.D. degree in chemistry must take a series of cumulative examinations given eight times a year. Students must pass three of the examinations by the end of the third year and a total of eight examinations before completing the program. At least six of these examinations should be in the student's specialization area. Students are encouraged to begin the examination sequence during the first year of graduate study, but must start no later than the second year in the Ph.D. program. The examinations are usually given the second Saturday of each month, October through May.

The mechanisms for designing and deciding on passing and failing grades for each examination reside with faculty members in each specialization area. It is the responsibility of members to select one of their members to coordinate the examination procedure and to submit to the graduate studies director a list of students taking the examination, the date of the examination, and whether students passed or failed.

**Seminar Requirement**

Students must present a seminar in their third year and during each subsequent year. One of the seminars is for the purpose of describing the dissertation research.

**Advancement to Precandidacy**

Students will be advanced to precandidate status after completing 20 hours of graduate work, including research hours; passing three

cumulative examinations; maintaining good standing; and selecting their research advisers.

**Advancement to Candidacy**

In addition to general Graduate School requirements for advancement to candidacy, students must complete the following:

- 1 60 hours, of which 21 should be in non-dissertation work. The 21 hours cannot include Chemistry 324, 341, 343, or 489, but should include one from each area: organic, inorganic, and physical chemistry. (Chemistry 341 may not be used to satisfy the corequirement in inorganic chemistry.)
- 2 Pass eight cumulative examinations.
- 3 Satisfactorily demonstrate scientific proficiency in French, German, or Russian. Students may satisfy this requirement by completing Scientific Language 100 in one of the foreign languages required with a grade of C or better, or the equivalent; receipt of a score acceptable to the department from the GRE in one of the languages required; or satisfactory performance on a language examination administered by the department.
- 4 Present at least one seminar to the department on the dissertation research.
- 5 Participate in the undergraduate academic program as laboratory assistants for at least one semester.
- 6 Be in good standing.

**Probation and Dismissal**

Students are dismissed from the program if they fail to pass at least three cumulative examinations before the end of the second year as applicants for the Ph.D. or otherwise fail to meet the standards set forth by the Graduate School.

**M.S. Degree Requirements**

Candidates for the M.S. degree in chemistry must take the placement examinations and, if necessary, repeat undergraduate courses for no credit. The graduate studies director will advise students of their programs before registration.

The ultimate choice of whether students may enroll in the M.S. or Ph.D. degree programs resides with the chemistry faculty. Decisions are based on performance on the placement



## Economics

examinations and in course work at UMSL, as well as considerations of students' backgrounds.

Students selected for the M.S. program and others enrolling by personal choice are required to complete the M.S. degree before admission to the Ph.D. degree program can be considered.

A minimum of 30 hours are required, including 3 hours in Chemistry 489. No more than 3 hours in Chemistry 489 may be applied toward the program. Students are not required to take the cumulative examinations or foreign language study.

**M.S. Degree with Thesis**

Students selecting this option must be enrolled full-time in the day division for at least two consecutive semesters. During this time students are expected to enroll in Chemistry 490 and work on the thesis.

A maximum of 12 hours of Chemistry 490 may be applied toward the required 30 hours. At least 9 hours must be at the 400 level, excluding Chemistry 490. A maximum of 9 hours in 200-level or above courses outside the department may be accepted if students receive prior approval of their advisers and the department.

Students are expected to follow all other general requirements of the Graduate School regarding master's degree and thesis requirements.

**M.S. Degree without Thesis**

Unlike the thesis option, students need not be enrolled full-time. Of the required 30 hours, 15 credits must be at the 400 level. A maximum of 12 hours taken in 200-level or above work outside the department may be accepted with prior approval of the graduate studies director.

The M.A. degree program in economics is designed to prepare candidates for positions as professional economists. Graduates may find positions as economists in economic research and operational areas of banks and other financial institutions, businesses, international organizations, and various governmental agencies; as economics teachers at the junior college level; or as administrators in sales, production control, urban planning, and international government operations.

**Admission Requirements**

In addition to the general admission requirements of the Graduate School, applicants must have successfully completed the following courses or the equivalent before admission as regular students: Mathematics 31 and 101 and Economics 250 and 251.

**Degree Requirements**

Of the 30 hours required for the degree, students may not apply more than 6 hours of work outside the field toward the program. At least 15 hours must be at the 400 level.

Students must also complete the following: Economics 365, 401, and 402

Entering students who do not have 6 hours of intermediate economics theory may take Business Administration 410 and 411 rather than Economics 250 and 251, but must complete a total of 36 hours, of which 18 must be at the 400 level.

At the department's option, students may write a thesis. All students must pass a comprehensive examination, written, oral, or both. Students failing the examination may repeat it at the end of six months, but may not take it more than twice.

## School of Education

Programs leading to the M.Ed. degree are offered in elementary education, secondary education, elementary and secondary school administration, and counseling. Within these programs, graduate courses are available for areas of emphasis in reading; children's literature; early childhood; elementary language arts, mathematics, science, or social studies; many secondary and adult teaching fields; community education; special education (emotional disturbances, mental retardation, and learning disabilities); elementary, secondary, or general counseling.

Programs leading to the Ed.D. degree are offered in two broad interdisciplinary emphasis areas: learning-instructional processes and behavioral-developmental processes.

### **General Requirements for the M.Ed. Degree**

The School of Education follows Graduate School policies relating to admissions, academic standards, residency, transfer credit, time limitations, and thesis options. The minimum number of hours required for the M.Ed. degree is 32. The school has adopted a flexible policy on comprehensive examinations with options determined departmentally.

### **Advisement and Program Planning**

After acceptance, each student completes a graduate advisory form, available in the School of Education office. An adviser is then appointed, who counsels the student in registration and program planning. A Program for Master's Degree form must be submitted for approval during the first half of the student's program. This form includes all course work in the program and the comprehensive examination option. Once approved, the degree program may be changed only by petition.

### **Administration, Foundations, and Secondary Education**

The AFSE department offers programs leading to the M.Ed. degree in elementary school administration, secondary school administration, and secondary education. Missouri certification requirements for secondary principals in AAA schools are met by a 60-hour program in advanced certification studies, considered a natural extension of the master's degree programs. Students who have not met secondary teaching certification requirements may elect a combined master's in education and certification program.

### **Elementary and Secondary School Administration**

To meet Missouri certification requirements for elementary school principals, students must have a master's degree in elementary school administration and a life elementary teaching certificate. For positions as secondary school principals in A or AA schools students must meet the Missouri certification requirements of a master's degree in secondary school administration and life secondary teaching certification. To obtain a secondary principal's certificate in AAA schools or certificate for the position of director of elementary education, students must take a 60-hour graduate program in advanced certification studies.

### **M.Ed. in Administration and Advanced Certification Studies**

The master's program must include those courses marked with an "M" under common core studies. The remainder of the M.Ed. courses should be selected from those listed under Technical and Human Aspects and Electives.

### **Elementary Administration**

Advanced Certification Studies  
Recommended Curriculum (60 hours)

#### *Required Core Studies*

Philosophical Foundations  
Education B471 (M)

#### *Psychological Foundations*

Education A405 (M) and A432

*Research Foundations*

Education G427 (M) and G431 (M). G431 may be waived if students show competence in this area; only one of the two courses is required for the M.Ed. degree.

*Administrative Foundations*

Education C408 (M), C414 (M), E404 (M), and E406 (M)

*Technical and Human Aspects**Technical Aspects*

Education C418; C419; one of the following: E425, E450, E451, E452, or E453; and another course in this area.

*Human Aspects*

Education C420 and another course in this area.

*Minor Area of Concentration*

Students are expected to demonstrate competence in at least one other field. Other fields may include sociology, political science, business administration (industrial-labor relations or other areas), economics, educational research, and other approved fields. Competence may be shown by successful completion of at least 6 hours in one of these fields.

*Internship or Field Study*

Candidates for the advanced certification studies who lack administrative experience are strongly urged to participate in a three-hour internship program. A field study is required for candidates who have sufficient administrative experience and for those unable to secure permission from their school district for active administrative involvement.

*Electives*

Six hours of electives may be selected from graduate courses in the school or other cognate fields upon the approval of the adviser and Graduate School. Following is a list of recommended electives:  
Education B472, B475, C400, C401, C410, C411, C416, C419, C420, C422, C425, C430, C431, C452, D430, and G401.

**Secondary Administration**

Advanced Certification Studies  
Recommended Curriculum (60 hours)

*Required Core Studies*

Philosophical Foundations  
Education B471 (M)

*Psychological Foundations*

Education A405 (M) and A432

*Research Foundations*

Education G427 (M) and G431 (M). G431 may be waived if students show competence in this area; only one of the two courses is required for the M.Ed. degree.

*Administrative Foundations*

Education C406 (M), C414 (M), D415 (M), and D445 (M)

*Technical and Human Aspects**Technical Aspects*

Education C418, D440, D446, and another course in this area.

*Human Aspects*

Education C420 and an additional course in this area

*Minor Area Concentration*

Students are expected to show competence in at least one of the following fields: sociology, political science, business administration (industrial-labor relations or other areas), economics, educational research, or another approved field. Competence may be shown by successful completion of at least 6 graduate hours in one of the elected fields.

*Internship or Field Study*

Candidates for advanced certification studies who lack appropriate administrative experience are strongly urged to participate in a three-hour internship program. A field study is required for students who have sufficient administrative experience and for those unable to secure permission from their school district for active administrative involvement.

**Electives**

Six hours of graduate courses in the school or other cognate fields may be selected by candidates in consultation with their advisers and the approval of the Graduate School. The following electives are recommended: Education B472, B475, C400, C401, C410, C411, C416, C419, C420, C422, C425, C430, C431, C452, D430, and G401

**Secondary Education**

The M.Ed. program with specialization in secondary education is flexibly designed to allow for the special interests of teachers, department chairpersons, curriculum workers, and instructional supervisors.

Candidates' programs may be planned to range from 8 hours in the teaching field and 24 hours in professional courses to 23 hours in the teaching field and 9 hours in professional courses. Programs must be planned with advisers and meet the approval of the department, school, and Graduate School.

The minimum 32-hour program includes the following requirements and recommendations:

**Core Requirements**

Professional Foundations  
Education A405 and B471

**Teaching Field**

8 hours required. Courses approved by the Graduate School for M.Ed. programs are to be selected in consultation with an adviser in the candidate's teaching field.

**Secondary Education**

At least 3 hours in one or more of the following:  
Education D440, D445, D446, G431, or G427

**Electives**

Additional courses may be taken in the School of Education and/or the teaching field to provide a consistent program.

**Secondary Education with Emphasis in Reading**

The M.Ed. with an emphasis in secondary reading is designed to enable candidates to further their competencies as teachers of reading and to prepare for positions as reading specialists, reading consultants, and/or further graduate study.

**Core Requirements**

Professional Foundations  
Education A405 and B471

**Secondary Education (one or more recommended)**

Education D440, D445, D446, G431, and G427

**Courses in Reading**

Required courses in reading must be taken in the following sequence:  
Education 365, E469, G433, E479, E489, and D410 (all but Education E469 are required for certification in reading by Missouri Teacher Certification regulations).

**Teaching Field**

Courses approved for the M.Ed. program in candidates' teaching fields are to be selected in consultation with an adviser from the field.

**Secondary Education and Certification**

The M.Ed. in secondary education requires a minimum of 32 hours of graduate credit. If certification is obtained with undergraduate courses alone, students must take an additional 24 hours of professional preparation for a total of 56 hours. Under the combined program, up to 15 hours may be applied to both the M.Ed. and certification, reducing the necessary total to a minimum of 42 hours.

**Required and Recommended Courses**

Professional Requirements  
Education 2xx (Curriculum and Methods of Teaching) and 271

**Certification and M.Ed. Requirements**

Education A405, A408, A432, B471, and D440

**Electives**

Selected graduate courses, including at least 8 hours in the teaching specialty.

### Behavioral Studies

The Department of Behavioral Studies offers work leading to the M.Ed. and requisite course work for state certification in elementary and secondary guidance and counseling and in special education.

Areas of emphasis are available in elementary school, secondary school, or general counseling. Options available in the special education emphasis area are behavioral disorders, learning disabilities, and mental retardation.

Students wishing to receive Missouri certification in elementary school counseling or secondary school counseling must complete all courses with an asterisk in addition to holding teaching certificates valid in Missouri. The general counseling area, for which there are no certification requirements, is inappropriate for school counselors.

#### Secondary School Counselors

The secondary school counselors graduate program is designed to enable students to meet the state certification requirements for secondary school counselors. Following are the required courses and their prerequisites. Advisers, with the instructor's consent, may determine that other experience or equivalent training meets the prerequisite requirements.

##### *Area of Specialization*

Education \*G401, \*G404, \*G407, \*G408 or G409, G412, \*G415, and \*G416

##### *Psychological Foundations and Human Development*

Education A405, \*A432, and \*G406

##### *Measurement and Evaluation*

Education G432 and G433

#### Elementary School Counselors

The elementary school counselors program is designed to enable students to meet the state certification requirements for elementary school counselors. Following are the required courses and their prerequisites. Advisers, with the instructor's consent, may determine that other experience or equivalent training meets the prerequisite requirements.

##### *Area of Specialization*

Education \*G401, \*G404, \*G407, \*G412, \*G415, and \*G416

##### *Psychological Foundations and Human Development*

Education A405, \*A407, \*A432, and \*G406

##### *Measurement and Evaluation*

Education \*G432 and \*G433

##### *Certification Requirements*

Education \*369 or E469

#### General Counselors

The general counseling emphasis area allows flexibility for developing counseling programs appropriate to particular non-school settings. Students must have their adviser's approval before taking other than required courses.

##### *Area of Specialization*

Education G407, G412, G415, and G416

##### *Psychological Foundations and Human Development*

At least one course from the following: Education A400, A405, A407, A408, A410, A420, A432, or G406

##### *Measurement and Evaluation*

At least one course from the following: Education G427, G430, G431, G432, or G433

##### *Electives*

To be selected in consultation with advisers.

#### Special Education

Graduate students should understand that completion of the M.Ed. program in special education does not assure teaching certification. Students seeking the degree and certification should consult with their advisers.

Following is the recommended curriculum for students enrolled in the learning disabilities, mental retardation, or behavioral disorders option.

##### *Area of Specialization*

9-18 hours required from the following: Knowledge Base (3-6 hours) Education E400, E411, E490, or E493

**Curriculum (3-6 hours)**  
Education A433, D445, D446, E406, E492, E494, or E495

**Practicum (3-6 hours)**  
At least 3 hours must be taken in Education E496.

**Psychological Foundations and Human Development (3-6 hours)**  
Education A405, A407, A408, A432, or A436

**Measurement and Evaluation (3-6 hours)**  
Education G427, G431, G432, or G433

**Electives**  
Electives may be chosen from the courses listed here and from other courses with approval of the adviser and department chairperson.

### **Childhood Education**

The Childhood Education department offers three programs leading to the M.Ed. in elementary education: generalized or specialized elementary education, elementary education with certification in reading, and elementary education with teaching certification.

#### **Study Programs**

Candidates may elect to develop a general curricular program or a specialized program in selected curricular areas. Both programs follow a three-phase sequence as follows:

##### *I Core Competencies*

12 hours, including Education E405, E406, and 6 hours selected, in consultation with advisers, from among cognate fields or professional education.

##### *II Content Competencies*

12 hours. Specialists must select at least 9 hours in any one of the following areas; generalists should select no more than 6 hours in any one: children's literature, early childhood, language arts, math, reading (for reading certification program see below), science, or social studies.

##### *III Curricular Applications Competencies*

9 hours. Students must select, in consultation with their advisers, a measurement course, and complete the following:  
Education E407 and E408

Upon completion of E405 and E406 in phase one, each candidate selects a curricular area or areas, identifies an adviser from the childhood education graduate faculty, and plans appropriate course sequences. A candidate enrolling in the specialist program should select an adviser in the area of specialization.

The sequence of courses, E405 and E406, should be maintained at the beginning of the program; E407 and E408 constitute the final two program courses.

Electives should be selected according to candidates' needs and/or interests.

**Elementary Education with Certification in Reading**

The M.Ed. program with emphasis in reading is designed to enable candidates to further their competencies as reading teachers and prepares them for positions as remedial reading specialists, reading consultants, and/or further graduate study. The minimum required and recommended courses are as follows:

*Core Requirements*

At least one graduate-level course in each of the following areas: learning psychology; research, statistics, and measurements; and elementary curriculum.

*Courses in Reading*

The following required courses must be taken in sequence. Courses denoted by asterisks are required for certification in remedial reading by Missouri teacher certification regulations. Students, with their advisers' permission, may substitute other courses for any requirement if they have had a recent upper-class undergraduate course covering the same material.

Education \*325 or 365, \*E469, \*G433, \*E479, and \*E489

*Electives*

English 220, 221  
Education 340, 365, 369, A432, B471 (recommended), E411, E415, E425, E445, E466, G406, G431

Other courses may be selected from cognate fields after conferring with an adviser in reading.

**Elementary Education and Certification Program**

The combined M.Ed. and certification program totals 62 hours, not including any courses required to remove academic deficiencies. Graduate credit will not be given for courses at the 100 or 200 level.

*Core Requirements*

Professional Education  
Education 110, 137, 139, 140, 150, 153, 155, 157, and 251

*Certification and M.Ed. Requirements*

Education 325, B471, 302 or A405, A407, and A432 or 313

*Electives*

20 hours

### **Doctor of Education Degree**

The Ed.D. degree is designed primarily for the field practitioner, and is, therefore, a comparatively broad-based interdisciplinary degree. The two emphasis areas, learning-instructional processes and behavioral-developmental processes, embrace the two general categories of professional activities.

Learning-instructional processes place primary emphasis on the teaching-learning relationship as well as general planning and development of organization programs to carry on this relationship successfully. Programs focus on the interactive aspects of educational variables such as curriculum development, instructional planning, administrative and supervisory processes, foundational perspectives, use of instructional media, and applied research techniques to maintain and improve quality instruction in viable learning environments.

Behavioral-developmental processes place primary emphasis on the nature of individuals. Leadership capabilities are shown by mastery of concepts of change strategies through a social science perspective. Through their understanding of technology and research relating to childhood-adolescent-youth and adult years, graduates become potential agents of change in schools. Hence, doctoral studies focus on such elements as learners' behavioral and developmental characteristics, typical and atypical development within varied environments, motivation, strategies of behavioral change, and counseling processes.

Students seeking the Ed.D. degree are expected to meet the doctoral degree requirements and procedures adopted by the Graduate School. (See Doctoral Degree Requirements for details.)

#### **Admission Requirements**

In addition to meeting the application and admissions requirements of the Graduate School, students must submit three letters of recommendation. Because enrollment is limited, admission standards are comparatively high. Successful candidates must exhibit significantly above-average academic records

and GRE scores. In exceptional cases, other criteria may outweigh these customary indicators of probable academic success.

At least two years of teaching or other school service experience is required for admission. Exceptions may be made by substituting a supervised internship during the first year of the program.

#### **Program Requirements**

At least 90 hours beyond the baccalaureate degree are required for the Ed.D. degree. The credits are distributed as follows:

##### *Core Studies*

General Foundations, 12 hours  
Philosophical, historical, and comparative foundations of education  
Psychological, sociological, and anthropological foundations of education  
Curriculum, instruction, and supervision

##### *Research Methods, 12 hours*

Statistics  
Research design  
Computer applications  
Nonquantitative research  
Tests, measurements, and evaluation

##### *Common Doctoral Seminars, 6 hours*

##### *Role Specialization, 48 hours*

Emphasis area doctoral seminars (6-12)  
Emphasis area electives (15-27)  
Related area (12-18)  
Internship (3-9)

##### *Dissertation, 12 hours*



## English

The Department of English offers work leading to the M.A. in English. One program is offered for all graduate students in English, regardless of their professional objectives. At the same time, the program contains considerable flexibility so that students receive personal attention from their advisers in planning the course of study.

Students may select courses in any of the areas offered: English literature, American literature, and linguistics. While the program emphasizes wide coverage of literature and language rather than specialization, students gain depth by completing a master's essay. In addition, students study the basic bibliographical and research tools and a variety of approaches to literary study. Students continue their training in the writing of clear and effective essays in each course.

### Admission Requirements

Applicants must meet Graduate School and departmental requirements. Students should have a baccalaureate degree with at least 24 upper-division hours in English. Normally only students with grade point averages of at least 3.0 in undergraduate English courses and 2.75 overall are admitted. In addition, the department requires two letters of recommendation from former teachers of applicants. The Graduate Committee of the English department reviews undergraduate records, GRE scores, and letters of recommendation when selecting applicants.

Applications should reach the admissions office no later than May 1 for the summer session or fall semester and December 1 for the winter semester. Applications received after these dates are considered only if spaces are still available.

### Degree Requirements

In addition to the Graduate School requirements, students must complete at least 18 of the required 30 hours for graduation in 400-level courses, all of which must be approved by the department and Graduate School. Students must receive graduate credit for English 400 and 499 and show proficiency in a foreign language, either classical or modern.

Further details regarding the program may be found in *The Master of Arts in English*, available from the English department.

## History

Two programs of study leading to the M.A. in history are offered by the Department of History. One program emphasizes breadth of historical knowledge acquired through graduate coursework, while the other emphasizes research competence acquired through writing a master's thesis. Both programs offer intermediate training for students wishing to continue in doctoral programs, advanced training for those preparing for teaching careers, and disciplined advanced work for students with avocational interests in history.

The general study areas for the degree are European (including Britain), United States, East Asian, and Latin American history. Within these general areas students may specialize in the following fields: Ancient, Medieval Europe, Renaissance and Reformation, Europe 1648-1815, Europe 1815-present, Russia, Britain, China, Japan, United States to 1865, United States after 1865, and Latin America.

### Degree Requirements

Candidates should take 30 hours of graduate work at the 400 level; no more than 9 hours may be in history or related fields at the 300 level. Candidates selecting European or United States history must take two fields within that area. Before completing 15 hours students must decide whether to pursue the comprehensive examination or thesis option for the remainder of their programs.

Before the final oral examination, students must demonstrate competence in a foreign language or in quantitative methods as applied to history. Competence in a foreign language may be shown by the candidate's performance on the GSFLT examination. Competence in quantitative methods may be certified by a grade of B in History 399, or by other means approved by the department.

### Comprehensive Examination Option

At least 21 hours must be taken in 400-level reading courses within the department, and at least 3 of those hours must be outside the student's general area. Certain 400-level reading courses, designated by asterisks in the course schedule, may be taken for either 3 or

5 hours. To receive 5 credit hours, students must write a substantial research paper, normally not to exceed twenty-five pages in length, in addition to the regular coursework. Comprehensive examination students must take two of these five-hour courses, and may elect to take others in this category for 3 hours credit.

Candidates take comprehensive oral examinations, during the last semester of residence, covering three fields selected by students in consultation with their advisory committee. The advisory committee consists of the student's major professor as chairperson and two other professors, one from outside the general area and one who may be from outside the department. The regulations for passing, failing, or failing with an option to repeat the examination are the same as for the thesis option.

#### **Thesis Option**

At least 15 hours must be taken in 400-level reading courses within the department, and at least 3 of these hours must be outside the student's general area. Thesis students may enroll in 400-level courses designated by asterisks in the course schedule for 3 hours credit, but may not write the research paper in such courses.

The core of the program is a 4-hour, year-long thesis seminar in which students each write an original thesis based principally on primary sources. The maximum length for the thesis normally does not exceed 100 pages of text. Students also receive an additional 2 hours of thesis credit upon approval of the thesis by an advisory committee. The committee consists of a major professor who directs the thesis, and two other professors selected by students in consultation with the major professor. One member of the committee must be outside the general area, and one may be from outside the department.

The advisory committee administers an oral examination during candidates' last semester of residence. Examinations cover the thesis, the field in which it falls, and one additional field outside the general area.

The committee decides by majority vote whether students shall pass, fail, or have the option to repeat the examination at a later date. Students retaking the examination may, at their option, do so in oral or written form. Students may not take the examination more than twice. The second examination must be held no less than one and no more than two semesters from the date of the first examination. Summer session may be counted as a semester under this provision, but students should be aware of the difficulties involved in gathering faculty committees during the summer.

## Mathematical Sciences

The Department of Mathematical Sciences offers work leading to the M.A. in mathematics. The program is designed to insure that students will obtain a strong background in the areas of analysis and algebra. Through appropriate choices of electives, students may build upon this background a degree program well suited to prepare for teaching at the high school, junior college, or four-year liberal arts college level; a program directed toward application of mathematics in industry or business; or a program designed to serve as a basis upon which students may continue toward a Ph.D. in mathematics.

**Preliminary Advisement**

Incoming students are assigned advisers with whom they should consult before each registration period. First-year students will meet with their advisers to determine proper placement. If necessary, students may have to repeat undergraduate course work for no credit.

**Degree Requirements**

Candidates for the degree must complete 30 hours of mathematics courses numbered 300 and above, including Mathematics 410, 442, and 416, as well as one semester Topics course. Students also must take written and oral final examinations over courses presented for the degree. Students failing either part are allowed to repeat that part at the end of six months. Candidates are not allowed to take either part more than twice.

## Physics

The M.S. in physics program combines a sound basis in the fundamental areas of classical and modern physics from both a theoretical and an applied perspective. The program is designed to enable students with undergraduate backgrounds in physics or other technical areas to further their professional development and maintain and improve their technical development. The program is offered almost entirely in the evening to serve students employed locally.

**Admission Requirements**

In addition to meeting the Graduate School general admission requirements, applicants must submit scores from the GRE physics test. The department requires applicants to have adequate backgrounds in such areas as mechanics, thermodynamics, electromagnetism, optics, electronics, and modern physics. Students admitted to the program with deficiencies in these areas are required to take appropriate undergraduate courses. If necessary, a remedial program is determined in consultation with the department graduate studies director at the time of application for admission.

**Degree Requirements**

Students must complete 30 hours in graduate physics courses with at least 18 hours at the 400 level. The remaining 12 hours can be taken at the 300 or 400 level. The 18 hours must include 2 hours of seminar credit or a thesis. The thesis replaces the 2 hours of seminar credit and 3 of the 12 hours at or above the 300 level. Candidates must also pass a comprehensive examination. For students submitting a thesis, the examination includes a defense of the thesis.

**Typical Program**

First Semester  
Physics 408 (or 418)  
Physics 3xx  
Total: 7 hours

Second Semester  
Physics 409 (or 419)  
Physics 3xx  
Total: 7 hours

## Political Science

Third Semester  
 Physics 418 (or 408)  
 Physics 3xx  
 Physics 490 or Seminar  
 Total: 8 hours

Fourth Semester  
 Physics 419 (or 409)  
 Physics 3xx  
 Physics 490 or Seminar  
 Total: 8 hours

The M.A. program in political science, offered by the Department of Political Science, offers intermediate education for individuals anticipating careers in government, business, community, or non-profit service agencies; teaching careers in secondary schools or community colleges; or for those planning to continue in doctoral programs.

The program focuses on public policy analysis-evaluation in the local, state, national, and international areas, and public administration. Courses also are offered in American national politics, comparative politics, international politics, and political theory. A special program is also offered involving a major in political science and a minor in administration of justice.

Research by students in the program is assisted by UMSL's Center for Community and Metropolitan Studies, Center for International Studies, and Computer Center. The department is a member of the Inter-University Consortium for Political Research, providing graduate students access to a wide range of survey data on local-state-national, European, and international politics.

### Admission Requirements

In addition to meeting the Graduate School general admission requirements, students should have undergraduate backgrounds in the social sciences. Students who do not meet this or the grade point requirements may be admitted upon approval of the department. All students applying for admission are required to submit two letters of recommendation to the director of graduate studies.

### Degree Requirements

Students must meet the general requirements of the Graduate School. Minimum departmental requirements include 24 hours of course work, of which 18 hours must be at the 400 level and 12 hours must be in core courses, including Political Science 401, 410, 411, 430, 440, 450, 460, 470, and 480. Students must also select one of the following exit projects: 8 semester hours of thesis work, 8 semester hours of internship work, or 9 hours of additional course work and an approved

## Psychology

paper. In addition, the department encourages students to take courses in other disciplines.

Candidates must take a final oral. This oral, conducted by a three-person faculty committee, will be a focused review and discussion of the exit project.

The Department of Psychology offers graduate work leading to the Ph.D. degree in either clinical-community or general experimental psychology. The department does not offer a program leading to the terminal M.A. degree in psychology.

The general experimental program provides opportunities for study and research in the areas of human and animal learning and memory, perception, developmental psychology, and social psychology. Emphasis is placed in the clinical-community psychology program on both research training and practical involvement in community-oriented clinical activities, including an internship experience.

Among the department's physical facilities are an environmental chamber, comparative, social, and human experimental laboratories, and a wide range of research equipment, including closed-circuit TV facilities. The department also has a full-time technician.

### Admission Requirements

In addition to meeting the general admission requirements of the Graduate School, applicants should have completed undergraduate courses in general psychology, psychological statistics, and experimental psychology.

### Degree Requirements

Students normally take only 400-level courses in accordance with study plans developed in consultation with their advisers. Only under special conditions are students permitted to take any undergraduate psychology courses for graduate credit.

Only full-time students are admitted; it normally takes a full-time graduate student at least four continuous years of work to complete the degree requirements.

## Public Policy Administration

The master's in public policy administration program is an interdisciplinary program designed to prepare students for managerial positions in the public sector.

Combining the faculties and resources of the economics and political science departments and the School of Business Administration, the program includes courses in policy analysis, public administration, management, accounting, and economics in the basic curriculum. The MPPA program differs from existing programs available in the Missouri-Illinois region in its interdisciplinary nature and emphasis on the development of analytic and administrative skills. It is designed to meet the needs of prospective full-time students as well as those who wish to earn a degree in the evening while continuing to work.

There currently exists a need for well-trained policy administrators and analysts. Frequent contact is maintained with public practitioners and public offices in the St. Louis metropolitan area, providing valuable input for program development, creation of a wide variety of internship assignments, and assistance with a vigorous placement program for MPPA graduates. Interns may be placed in assignments in planning agencies, city managers' offices, administrative departments, and budgeting offices.

In addition to the distinguished doctoral-level faculty in business, economics, and political science, students have access to courses and faculty in other social sciences, the administration of justice department, Center of Community and Metropolitan Studies, and Center for International Studies. The full facilities of the Computer Center including the Urban Data program are available. UMSL is also a member of the Inter-University Consortium for Political Research.

### Degree Requirements

The program includes 42 hours, 27 in the core curriculum sequence and 15 in a special field chosen by students in consultation with their advisers.

### Core Curriculum

Management  
Business Administration 480, 481, and 482

Public Administration  
Business Administration 460  
Political Science 440

Policy Analysis  
Political Science 400 and 409

Governmental Accounting and Economics  
Business Administration 418  
Economics 421

A full range of graduate-level offerings in the social science departments and School of Business Administration are available for specialized training. Among the possible fields are urban transportation, local finance and budgeting, housing, administration of justice, planning, community development, and international administration.

A thesis is not required, but students must complete written analyses as part of their course work and/or internships and there is an examination the final semester.

Students entering the MPPA program may be required to take up to 9 additional hours of prerequisites in mathematics, accounting, and social science. These include Mathematics 101 or 102 or the equivalent and Business Administration 410 and 440. Students are required to have general undergraduate backgrounds in the social sciences (political science, sociology, economics, psychology) for other core courses. These additional courses do not count toward the 42 hours.

### Internships

Up to 6 hours may be earned through an internship. MPPA students employed in public agencies may receive up to 6 hours of credit for internships in those agencies. To do so students must develop, in consultation with their advisers, special research projects outside the scope of the regular employment duties. Credit is granted after successful completion of the project and a written paper at the end of the semester.

Sociology

**Typical MPPA Program (full-time student with all prerequisites)**

First Semester  
 Business Administration 460 and 480  
 Political Science 400 and 440  
 Total: 12 hours

Second Semester  
 Business Administration 418 and 481  
 Economics 421  
 3 hours of special field electives or internship  
 Total: 12 hours

Third Semester (Summer)  
 6 hours of special field electives or internship  
 Total: 6 hours

Fourth Semester  
 Business Administration 482  
 Political Science 409  
 6 hours of special field electives or internship  
 Total: 12 hours

Graduate studies leading to the master of arts degree in sociology are designed to prepare students for careers in the academic sphere and in research or to improve their competence in professional roles involving service to the community.

The program centers around urban problems and social change and has special emphasis in the sociological and anthropological study of deviance, including criminology, law and society; urban sociology, including urban race relations; and social psychology.

**Admission Requirements**

In addition to meeting the general admission requirements of the Graduate School, students must have at least 9 semester hours in sociology, credit in Sociology 110, 120, and 130 or their equivalents, and three letters of recommendation from former instructors.

Students wishing to continue regular employment outside the university may enroll on a part-time basis.

**Degree Requirements**

At least 21 of the required 30 hours must be taken in courses offered by the department, including the following courses or their equivalents: Sociology 422, 432, and 492.

Candidates must also perform satisfactorily on a written comprehensive examination or prepare a research report. The written examination is usually taken in the last semester of course work. Students failing the examination may retake it only once and within a twelve-month period. Students electing the research report option must enroll in a sociological research practicum course. With recommendations from the adviser and student, the departmental graduate studies director appoints a committee to supervise the research and to administer an oral examination upon completion of the report.

**Elective Internship in an Urban Agency**

As part of the training in conjunction with research practicum courses, students may have the opportunity for placement in a supervised internship in an agency dealing with urban problems.

# **General Information**



## Fees

Detailed information regarding fee expenses and residency is furnished in the *Schedule of Courses* and a pamphlet, *Tuition and Residence Rules*.

**The university reserves the right to change fees and other charges at any time without advance notice.**

All university fees must be paid in full at the time of registration as a condition of admission to classes. Students who preregister and do not pay fees by the announced deadline will have their registration cancelled and be required to register again and pay fees during the regular registration period. Registration is not complete until all fees are paid; partial payment or deferment of fees cannot be honored. Valid Master Charge or BankAmericard credit cards are accepted.

Courses taken as a hearer or for reduced credit are counted at their normal credit value in computing the fees to be paid. Students enrolling in zero credit courses are required to pay fees according to the equivalent course credit.

Students presenting checks to the university in payment of student fees, which for any reason are not honored by the banks upon which drawn, are reinstated only upon payment of the check amount and a reinstatement fee of \$5. In addition, a fee for handling the returned checks is charged (see Late Registration Fee).

**Incidental Fee**

All students enrolled in the university must pay an incidental fee as follows:

Regular Semester  
\$270 for 9 or more credit hours

Summer Session  
\$135 for 5 or more credit hours

For other sessions not specified or partial enrollment, the incidental fee is calculated at \$31 per credit hour.

**Nonresident Tuition Fee**

Students are also required to pay a nonresident tuition fee if they have not been Missouri residents for at least one year

immediately preceding registration or do not meet other residency requirements. A definition of "residency" is outlined in *Tuition and Residence Rules*, available from the cashier's office. Students are responsible for registering under the proper residence and paying proper tuition fees. They are also responsible for raising any questions if there is a possibility that they are subject to the nonresident fee.

The nonresident tuition fee is charged as follows:

Regular Semester  
No fee for 1 to 6 credit hours  
\$160 for 7 credit hours  
\$320 for 8 credit hours  
\$420 for 9 credit hours  
\$540 for 10 or more credit hours

## Summer Session

No fee for 1 to 3 credit hours  
\$140 for 4 credit hours  
\$270 for 5 or more credit hours

**University Center and Student Activities Fee**

Students registered in the university are required to pay a University Center and Activities Fee as follows:

Regular Semester  
\$24.50 for 10 or more credit hours

## Summer Session

\$12.25 for 5 or more credit hours

For other sessions not specified and partial enrollments this fee is calculated at \$2.45 per credit hour or fraction thereof.

The University Center and Activities Fee is used for programs of broad interest within the university community. The fee is distributed as follows:

\$2.50 bond retirement on Multipurpose Building  
\$10.00 bond retirement on University Center  
\$7.00 Athletics  
\$5.00 Student Activities

**Final Semester Incidental Fee**

Candidates for graduate degrees who have completed degree requirements except for filing a thesis or dissertation and/or taking the final examination must register for at least 1

credit in the term in which they expect to receive the degree. Only students so registered may file applications for graduate degrees.

#### **Music Fee**

In addition to other fees, music majors must pay \$45 per semester for all required applied music. For nonmusic majors, the fee is \$45 per semester for each applied music area in which enrolled. Applied music areas include piano, voice, woodwinds, brass, percussion, and strings.

#### **Delinquent Indebtedness**

Students must clear all delinquent indebtedness to the university before diplomas or transcripts can be issued.

#### **Diploma Fee**

A \$5 fee is charged for each degree conferred and a \$2 fee for each certificate awarded.

#### **Late Registration Fee**

Students registering after the close of the regular registration period must pay a late fee of \$25. Students presenting checks to the university for payment of student fees which are returned unpaid and remain unpaid at the close of regular registration are considered late registrants and required to pay the late fee.

#### **Petition Fee**

Students dropping and/or adding one or more courses at any one time must pay a \$5 petition fee.

#### **Parking Fees**

Students wishing to operate motor vehicles on campus must register them and pay a fee at the time of registration. Failure to comply with traffic regulations may subject students to disciplinary action, payment of an additional fee, and the denial of the privilege to operate a motor vehicle on campus. Copies of *Traffic Regulations for the University of Missouri-St. Louis* are available from the UMSL Police Office.

The parking fee is \$2.50 per credit hour, up to a maximum of \$25 per semester, for each motor vehicle used by a student on campus. Students who do not drive regularly may park in the daily parking lot for a fee of 50 cents a

day. Special parking rates are available for car pools. Motorcycle and motorscooter fees are fixed at one-half these fees.

The revenue from parking fees is used to construct and maintain roads, parking garages, and surface parking; to rent parking space off campus when necessary; to pay for the printing of parking stickers and regulations; and to pay for all other related expenses. Detailed information on parking regulations and fee refunds is available from the cashier's office.

#### **Student Insurance**

An optional accident and sickness insurance plan is available at low cost to students and their dependents. Information concerning premiums and coverage is available upon request from the cashier's office.

#### **Thesis and Dissertation Fee**

Graduate students must also pay a fee for the binding and microfilming of the thesis or dissertation. The fee is \$5 for a thesis and \$30 for a dissertation.

#### **Transcript Fee**

A \$1 fee is charged for each official transcript and 50 cents for a photostatic copy.

#### **Refund of Fees**

##### **Regular Semester**

Students withdrawing during the regular semester are refunded the registration fee in accordance with the following schedule:

100 percent less \$10 for cost of handling registration if students withdraw before the day classwork begins.

70 percent if withdrawal is within two calendar weeks from and including the day classwork began.

50 percent for withdrawal between two and including six calendar weeks from the day classwork began.

No refund if withdrawal is after six calendar weeks from the day classwork began.

**Summer Session**

100 percent refund less \$10 for the cost of handling registration for withdrawal before the day classwork begins.

70 percent if students withdraw within one calendar week from and including the day classwork began.

50 percent if withdrawal is between one and including three calendar weeks from the day classwork began.

No refund for withdrawal after three calendar weeks from the day classwork began.

**Refund of Parking Fees**

Students leaving school or canceling parking privileges for which they have paid fees receive, upon return of scraps of the sticker, a refund of fees paid in accordance with the following schedule:

**Regular Semester**

75 percent if parking is dropped between the first and through the fourth week from the day classwork began.

50 percent if parking is dropped between the fifth and through the eighth week from the day classwork began.

25 percent if parking is dropped between the ninth and through the twelfth week from the day classwork began.

No refund if parking is dropped after twelve weeks from the day classwork began.

**Summer Session**

75 percent if parking is dropped between the first and through the second week from the day classwork began.

50 percent if parking is dropped between the third and through the fourth week from the day classwork began.

25 percent if parking is dropped between the fifth and through the sixth week from the day classwork began.

No refund if parking is dropped after the sixth week from the day classwork began.

Financial Assistance

**Undergraduate Students**

Students enrolled at UMSL have the opportunity to receive financial aid through part-time employment and student loans, scholarships, and awards. For detailed information on financial assistance programs and application deadlines, contact the Office of Student Financial Aid.

To assist worthy students who otherwise might not be able to attend the university, the University of Missouri Board of Curators has established a system of financial aid. This aid is available to qualified Missouri residents for attendance at one of the University of Missouri campuses. The scholarships and awards are administered under separate quotas and are not transferable from one campus to another.

**Curators Freshman Scholars Program**

Curators Freshman Scholars are selected in recognition of their outstanding academic achievement in high school and their potential for superior academic success. Scholars are chosen on the basis of high school rank, test scores, and high school principal or counselor recommendations.

Curators Freshman Scholars must rank in the top 3 percent of their graduating class and in the top 10 percent on the college aptitude test. Missouri residents who receive certificates of recognition for showing highest scholastic promise in Missouri graduating classes are offered the designation of Curators Freshman Scholar. For every 100 students or fraction thereof in a high school graduating class, one student is designated as a Scholar. The full incidental fee amount is waived for Curators Freshman Scholars during their freshman year.

**University Scholars Program**

University Scholars are selected in recognition of outstanding achievement while in college. University sophomores, juniors, or seniors are designated University Scholars if they have achieved a specified high cumulative collegiate grade point average (limited to approximately the top five percent of each class) over at least 24 acceptable hours excluding the summer session. Students transferring from other accredited institutions are eligible for this program if their cumulative

grade point averages meet the established standards and sufficient funds are available.

University Scholars are designated after the close of each regular academic year. The normal stipend is \$50 a semester for the following academic year if students are Missouri residents. Additional assistance depends upon individual financial needs; scholars seeking additional aid should file financial aid applications. Students who are not residents of Missouri but who are otherwise qualified for designation as University Scholars may be so designated without any waiver of incidental fees.

#### **University Waiver of Fees Program**

Within budgetary limits, the incidental fee may be waived in whole or in part, in accordance with the degree of need as determined by standard need analysis procedure, for students meeting specified academic standards. The financial need assessment is made through the student aid office.

To qualify, entering freshmen must meet these criteria:

Missouri residence; graduation from an accredited Missouri high school; rank in top 25 percent of their high school graduating class; rank in the top 25 percent on college aptitude test; and need financial assistance. Applicants should discuss this program with their high school counselors.

Upperclassmen (sophomores through seniors) must have achieved a specified cumulative grade point average over at least 24 acceptable hours excluding the summer session. Students transferring from other accredited institutions are considered on the same basis. Upperclass eligibility for incidental fee waiver is determined after the close of each regular academic year. Application forms for the program are available in the student aid office.

#### **Air Force ROTC College Scholarships**

Scholarships covering tuition, fees, and laboratory expenses are awarded to qualified cadets in the Air Force Reserve Officer Training Corps program. The scholarships cover only those expenses incurred during the regular academic session during which cadets

are enrolled in the AFROTC program. Recipients also receive \$100 per month for the period and reimbursement for book costs.

Students interested in the four-year program must apply during their high school senior year to Headquarters AFROTC, Maxwell Air Force Base, Alabama, before December 15. Cadets who do not receive four-year scholarships may continue to compete annually under the program locally administered by the Aerospace Studies Program, Parks College of Aeronautical Technology, Cahokia, Illinois, telephone 436-1695, extension 58.

#### **Army ROTC Scholarships**

In addition to four-year ROTC scholarships awarded to graduating high school students, Army ROTC scholarships are available to qualified upperclassmen enrolled in Army ROTC. These scholarships pay tuition, books, lab fee, and a \$100 monthly subsistence allowance for up to ten months of the school year. Selection for three, two, and one-year scholarships is based upon academic achievement, leadership potential, and demonstrated motivation toward a career as a commissioned officer. Additional information is available from the Professor of Military Science, Washington University, telephone 863-0100, extension 4662.

#### **UNITED/Special Services**

A limited amount of financial aid is available through UNITED, an academic assistance program providing attention to the needs of UMSL students who have not yet reached full academic potential. Participants are chosen on the basis of need, former academic preparation and achievement, and sustained interest and motivation. For more information contact the UNITED-Special Services Office.

**Student Services****Graduate Students****Teaching Assistantships**

Most departments with established graduate programs offer teaching assistantships to qualified graduate students. Appointments are usually half-time appointments and carry stipends which in the 1975-76 academic year averaged \$3,700. Students receiving assistantships are expected to pay all incidental fees, but are exempt from the nonresident tuition fee. Normally students with these stipends register for 9 hours each semester.

Teaching assistant appointments are made directly by the departments, and inquiries and applications should be addressed to the graduate studies coordinator of the appropriate department. Applications should be submitted no later than March 15 for the fall term and October 15 for the winter term. Since some departments observe different deadlines, applications should be submitted as early as possible. Appointments are normally announced by April 1 for the fall term and by November 1 for the winter term.

**Research Assistantships**

A small number of research assistantships are available in some departments and schools. Appointments are made by the Graduate School on the recommendation of the appropriate division. Conditions of appointments are generally similar to those of teaching assistantships. Inquiries should be addressed to the department, school, or Graduate School.

**Fellowships and Scholarships**

A small number of fellowships, based on need, may be available for graduate students. In addition certain departments or divisions have available a limited number of traineeships or fellowships. For information consult the appropriate department.

**Loans**

The university participates in the National Direct Student Loan Program, the federally insured Student Loan Program, the College Work-Study Program, and other support programs. For information on these programs or veterans' services contact the student financial aid office.

A wide variety of special services at the university assist students in one or more areas of their academic, personal, or social development.

**Developmental Skills Center**

The Developmental Skills Center offers assessment and referral services including individualized attention through the assessment counselors and basic skills services in reading, writing, math, and study skills. Workshops are scheduled each semester, usually in accordance with the student's schedule.

**Writing Lab**

Located in 211 Lucas, the Writing Lab is open to all students seeking to improve their skills in preparing written assignments. Center hours are posted and students may either walk in or be referred by instructors. The center provides individual help in organizing, writing, and/or proofreading papers for any class. While assistance is primarily tutorial, audio visual aids are available as well as an assortment of handbooks and programmed learning materials.

## Facilities

### **Bookstore**

The Bookstore is headquarters for ordering and selling textbooks and supplementary reading material, including paperback books. The Bookstore also sells class and study supplies, college jewelry, and insignia items. Commencement announcements, caps, and gowns are ordered through the Bookstore.

### **University Center**

The University Center houses university food services, an information and ticket desk, the Bookstore, Central Reservations Office, and offices of the Director of Programming and Director of Student Activities. Comfortable meeting rooms and work areas, a student activities center, a photographic darkroom, and an informal lounge space with a seven-channel music system provide a relaxing environment for groups and individuals to work together.

The Fun Palace, located on the hill overlooking the lake, is an extension of University Center facilities. A TV room, pinball machines, and ping pong and pool tables are offered for student recreation and entertainment. The Fun Palace also has a food concession open seven days a week.

### **Food Service**

The snack bar, located on the upper level of the University Center, is a fast food service open 7:00 am to 3:00 pm each weekday. For more substantial fare, the cafeteria located downstairs is open weekdays for lunch. Entree items, sandwiches, and snacks are also available in the cafeteria Monday through Thursday evenings. Catered services may be arranged at reasonable costs.

### **Information Services**

Student information services are housed at the Information Desk in the University Center lobby. UMSL students staff the desk from 7:00 am to 8:45 pm weekdays to provide information and referral services to the UMSL community and other interested persons in the St. Louis area. In addition, tickets for on-campus and selected off-campus events, as well as weekly bus passes and postage stamps, may be purchased at the desk. The campus lost and found department is also located at the Information Desk. Persons with questions about campus activities and services should call 453-5148 or stop by the center.

### *Hotline*

Information communications services include a twenty-four-hour a day "Hotline" system of recorded phone messages describing campus activities and a direct line to the Information Desk for personal assistance. Students can use the red "Hotline" phones, located in each building on campus, to dial "Hotline" numbers or campus departments and offices. "Hotline" phone numbers are: 5865, campus film information; 5866, ticket and cultural events information; 5867, daily calendar of campus events; and 5148, direct line to Information Desk. To reach any of these numbers off-campus dial the university exchange (453) before each extension.

### **Health Center**

Out-patient medical care, including first-aid and general health consultations, is available to students at the Health Center, open during day and evening class hours. Emergency medical care is provided for all members of the University community. The staff of full- and part-time health personnel is assisted by a St. Louis physician on a part-time basis. Patients are referred to health facilities in the St. Louis area when needed care is beyond the limitations of the center. The UMSL police assist in the event of medical emergencies.

### **Housing**

There is no university owned or approved housing at UMSL. The Personnel Office maintains listings for faculty, staff, and students of rooms, apartments, and houses for rent, and real estate for sale.

**Counseling and Career Planning****Counseling Service**

The Counseling Service offers free professional assistance to students, faculty, and staff with any concerns they may have of a personal, social, educational, or vocational nature. All contacts with staff counselors and psychologists are kept confidential. The service provides individual and group psychological counseling and consultation, vocational testing, and career choice guidance. A well-stocked library of career choice and educational opportunity materials is also maintained.

**Women's Counseling**

Special assistance for mature women entering or returning to college is provided through the Continuing Education-Extension Discovery Program for Women. Individual consultation is offered regarding educational and vocational plans, credit by examination, and other concerns relating to prolonged absence from the classroom. Workshops and short courses are also offered to ease the transition.

**Career Planning and Placement Office**

As an aid to students and alumni, the Career Planning and Placement Office offers career planning services and acts as a central registry for full- and part-time job opportunities off campus. Students undecided about their career choice should consult the office as soon as possible. Representatives from business, government agencies, and school districts conduct on-campus interviews through the office each semester. Students interested in securing full-time employment after graduation should register with the office at the beginning of their final year. A computerized job search program is available to aid alumni in finding full-time positions of their choice.

**Peer Counseling**

The peer counseling service is designed to give personal counseling to students by students on either a one-to-one or group basis. The service also acts as a referral agency to outside groups. For further information, contact the Dean of Student Affairs Office.

**Specialized Services****UNITED-Special Services**

UNITED is an academic assistance program providing attention to the needs of UMSL students who may require some support in pursuing a higher education. The program, serving St. Louis metropolitan area students, is comprehensive in nature, assisting students with their personal and social as well as academic adjustment.

During the crucial first two transitional years, the program provides supportive services, including academic advisement, counseling, tutoring, and a limited amount of financial aid. Students under consideration for the program attend a six-week preparatory session during the summer before the freshman year. Participants are chosen on the basis of need, former academic preparation and achievement, and sustained interest and motivation. For more information, contact the UNITED-Special Services Office.

**Office of Veterans Affairs**

The Office of Veterans Affairs offers assistance in making the transition from military life to student life as easy as possible. The office is available to help veterans establish educational goals and to explain the special benefits available to veterans. A staff of peer counselors, both black and white, female and male veterans, is available to help fellow veterans deal with school, drug, or housing problems; veterans benefits; jobs; or any other problems they may encounter. The office also has an outreach center in Vinita Park which acts as a referral point to help veterans in surrounding communities. For more information, contact the Veterans Affairs Office, 453-5315 or 453-5316.

**Women's Center**

The UMSL Women's Center provides information and programming to further the educational development of women at UMSL, and serves to promote a sense of community among faculty, staff, and student women. A small library of historical and current literature written about and/or by women and free information of special interest to women is maintained. The center provides problem-solving counseling and referrals for on- or off-campus medical and psychological persons, referral information on education and employment opportunities, and in cooperation

with the various women's studies courses, speakers on sexuality, marriage, careers, and the positive aspects of feminism.

#### **Black Culture Room**

The Black Culture Room houses a tutorial service and is equipped with a study area and lounge. Sponsored by the Minority Student Service Coalition, the room is called "Umajaa," an African word meaning brothers and sisters working together. For more information, call the Black Culture Room at 453-5949.

#### **Alumni**

As today's students form the present university community, UMSL's alumni help shape UMSL's future by supporting necessary improvements. The Alumni Association and the Office of Alumni Activities work together to promote UMSL and to establish mutually beneficial relations between the campus and its alumni. Membership in the association is open to graduates and former students. Alumni Association projects include student scholarships, alumni social activities such as Homecoming and Alumni Night, and the annual Serendipity Day, giving area high school seniors a chance to visit UMSL and meet members of the university community.

#### **KWMU**

KWMU (90.7 FM Stereo), the St. Louis area's largest coverage FM station, presents fine arts, news, and public affairs twenty-four hours a day and serves the university by broadcasting all university official announcements. A special student programming staff operates the facilities after midnight Fridays and Saturdays for "on-the-air" training. In association with Continuing Education-Extension, the station airs closed-circuit instructional and credit programming simultaneously with the regular classical music and news programming.

#### **Disabled Students Union**

The Disabled Students Union (DSU) serves as an ombudsman and clearinghouse for disabled students at UMSL. Through the work of this organization, the university has been equipped with ramps, walkways, and special parking areas. Serving as a link between students and the UMSL administration, the DSU strives to remove the architectural and psychological barriers which a disabled student frequently encounters in the pursuit of higher education. Library services for the visually and physically handicapped will be provided by the UMSL Library through a grant from the federal government.



## Organizations

### **Student Government**

The university student government, known as the Central Council, works for student participation in all aspects of university life and university affairs and policymaking. The Council supports the philosophy that all students are encouraged to govern themselves and be responsible for their government and education. In addition, the council works with the faculty and administration toward the objective of coordinating and maintaining an institution of increasing service to the students, alumni, metropolitan community, and state.

The council's activities range from Communiversy, which offers free, special interest non-credit courses, and a yearly course evaluation to investigating student grievances and proposing curriculum changes. Representatives are selected at large from the student body on the basis of one representative for every 500 students, including incoming students (new freshmen and transfer and graduate students).

### **University Senate**

The Senate is the governing body for the campus and exercises the functions of the faculty and the student body as directed by the UMSL Bylaws. Twenty-five students and seventy-five faculty are elected by their peers to the Senate. Much of the Senate business is carried out by committees. The standing committees to which students may be elected include: Committee on Committees, Executive Committee, Curriculum and Instruction, Admissions and Student Aid, Library, Welfare and Grievances, Student Affairs, Student Publications, Athletics, Fiscal Resources and Long Range Planning, Urban Affairs, and International Studies. In addition, ad hoc committees are established as needed.

### **Student Court**

The Student Court, appointed by the Central Council, makes recommendations to the dean of student affairs concerning traffic violations, adjudicates matters of grievances between individual students or groups of students, and conducts impeachment proceedings under provision of the Central Council Constitution.

### **Evening College Council**

The Evening College Council serves the evening student body as a liaison between students, faculty, and administrators. It serves as a sounding board for Evening College students' ideas and interests and coordinates social activities of special interest to evening students. Membership is open to all Evening College students who are in good standing. Applications are available in 324 Lucas Hall or from any council member.

### **Student Organizations**

Whether students' interests are on stage, writing for the "Current," checkmating a challenger, or organizing a group against lead poisoning, there are student clubs and organizations on campus to meet those interests. Information concerning recognized department clubs, fine arts groups, fraternities and sororities, religious organizations, and special interest groups may be obtained from the student activities office. The office also provides information on group and individual travel in the United States and abroad and has a computer service to help students form car pools.

## Programs

### **Cultural Opportunities and Entertainment**

The director of programming works with the student University Program Board and the faculty Performing Arts and Cultural Events Committee (PACE) in planning a variety of cultural, social, and extraeducational activities. These programs are subsidized in part by student activity fees and by the university. Program offerings include:

Concerts, including a series of free, informal concerts held during the noon hours in the University Center; weekend evening concerts, for nominal admission, featuring such performers as Cleo Laine and John Dankworth, the Romeros, and Joshua Rifkin; and some 40 concerts presented by student music organizations and fine arts department faculty members.

Free lectures by such personalities as Ralph Nader, Harrison Salisbury, Daniel Schorr, Ramsey Clark, Raoul Berger, and Arthur Knight.

Theatre, including performances by such professional theatre companies as England's Royal Shakespeare Company and the Manhattan Project, and performers Viveca Lindfors, Hume Cronyn and Jessica Tandy.

Two film series for the university community, one featuring weekend showings of contemporary films at a nominal fee and the other showing a wide variety of film classics at no charge.

Social events, including several informal dances and one dinner dance.

Professional and amateur art exhibitions ranging from African sculpture to the Americana of George Caleb Bingham in Gallery 210, sponsored by the PACE Committee.

### **Athletics**

#### *Intramurals*

UMSL's intramural program is geared toward the interests of the entire university community, and students, faculty, and staff are encouraged to take active roles in the creation of new intramural programs. Competition is offered at individual and team levels, with some programs for both men and women.

Activities currently offered include touch football, basketball, volleyball, street hockey, swimming, racquetball, handball, golf, tennis, bowling, softball, hoc soc, badminton, cross country run, superstars, and cycle race.

#### *Intercollegiate*

Intercollegiate athletics are available for both men and women at UMSL. Women's athletics is in its third year of intercollegiate competition and has already proven itself to be one of the area's best. The program includes women's basketball, field hockey, tennis, volleyball, and softball. The men's varsity teams have earned a winning tradition and brought national visibility to the university. Four of the teams, baseball, basketball, golf, and soccer, have reached national championships in recent years. Other teams include wrestling, swimming, cross country, and tennis.

Intramurals and intercollegiate athletics are supported in part by student activity fees. UMSL students with validated ID's are admitted free to all home athletics.

#### *Recreation*

The athletic and exercise areas in the Multipurpose Building are available for use by the university community at specified hours. During the regular semester, the building is open seven days a week and on specified evenings. Facilities include basketball, volleyball, badminton, and handball courts; wrestling and conditioning rooms, and an olympic-size swimming pool. Outdoor facilities include baseball and intramural fields and tennis courts. Volleyball, basketball, and tennis courts and an outdoor, olympic-size swimming pool near the library are also available for student use.

**Specialized Facilities****Library**

The Thomas Jefferson Library provides space for approximately 900 readers in a variety of seating types. Its collections include more than 400,000 bound volumes, more than 90,000 U.S. Government documents, and some 790,000 microform units. Additional library materials are available through the Inter-Library Loan Service from other University of Missouri libraries. Faculty and graduate students engaged in research can request materials from other libraries in the country through this service. The library is open more than 80 hours a week during regular sessions. Specific hours for the various library services are posted in the library and throughout campus.

**Archives**

The Archives and Manuscripts Division primarily serves UMSL students and faculty, but is open to all researchers. Located in the Thomas Jefferson Library, the archives office is open daily for reference service. Acquisitions are grouped into three sections: the University Archives, which includes official campus correspondence and publications, artifacts, and photographs telling the history of UMSL; the Manuscripts Collections, consisting of written, graphic, and photographic material reflecting many aspects of America, including the heritage of St. Louis; and the Oral History Program, which chronicles the lives and activities of people in the region by means of tape recordings.

The Division also acts as a resource center, duplicating for use, in either graphic or tape-recorded form, many of its holdings. Copies of photographs in the collections are loaned to patrons, although most archival and manuscript material does not circulate.

**Specialized Centers****Community and Metropolitan Studies**

The Center of Community and Metropolitan Studies performs a three-fold function of research, community service, and teaching. The center strives to provide an interdisciplinary approach to urban problems, with staff members holding appointments in such disciplines as sociology, economics, political science, fine arts, and business administration. As part of its education function, the center employs a limited number of undergraduate and graduate research assistants who have an opportunity to conduct their own research and develop a major thesis toward their degree. Most of the center's research focuses on the immediate problems of St. Louis and the metropolitan area. Recent projects have included studies of housing, mass transit, employment, public finance, crime, and drug addiction.

**Community Education Development**

Sponsored by Continuing Education-Extension and the School of Education, the Midwest Community Education Development Center serves Missouri, Kansas, and Oklahoma in the development of community schools. The center's specific services include consultation with educators and interested groups of lay persons; specialized community education courses, training, and continuing education programs; public information services; and modest financial support on a competitive basis through philanthropic foundation funds for communities wishing to start community schools.

**Computer Center**

Computer Center facilities on the four University of Missouri campuses provide modern computing services, available to faculty, staff, and students for educational, research, and administrative needs.

Hardware on the UMSL campus includes a General Automation SPC-16/65 computing system which is linked to an IBM 370/168 and an IBM 370/158 in Columbia. The SPC-16 serves as a remote job entry station to the seven megabyte dual 370 system where all processing is done. Peripheral equipment at UMSL includes a CalComp plotter, an OpScan 100 optical scanner for test scoring and data collection, and a digitizer. The Center also has a number of interactive terminals connected to the 370.

The local staff provides such support services as consultation, programming, keypunching, and operations. Users have access to a large software inventory, which includes a data base of urban information. For further information, assistance, or an account number, visit the center in 103 SSBE or call 453-5131.

#### **Engineering Center**

The Graduate Engineering Center at UMSL is part of the continuing education program of the University of Missouri-Rolla Extension Division. The center offers St. Louis area residents an opportunity to pursue graduate work in engineering, including M.S. and professional development degrees in aerospace, civil, electrical, chemical, environmental, mechanical, metallurgical, and nuclear engineering; engineering management; engineering mechanics; and computer science. For further information contact the UMR Graduate Engineering Center director at UMSL.

#### **International Studies**

The Center for International Studies supports academic programs, research activities, seminars, and conferences designed to promote and improve research methods in international studies, improve the methods of teaching international studies in schools and colleges, and encourage an interest in international affairs among the UMSL and area communities. The Center sponsors interdisciplinary and multidisciplinary courses and assists in staffing courses within individual departments; arranges seminars to meet specific faculty and student needs and interests; sponsors conferences and seminars; issues two publications; and directs the undergraduate international studies certificate programs.

#### **Urban Journalism**

The Urban Journalism Center is a joint venture of the School of Journalism, University of Missouri-Columbia, and UMSL. Graduate students enrolled at Columbia may spend a semester at UMSL researching and reporting on St. Louis area urban problems. Students also attend seminars in which they explore, through readings, discussions, and talks with area leaders and authorities, the conflicts, problems, and strengths unique to a large metropolitan area. Selected seniors in the Columbia program may also attend the center for one semester. The center is supervised by a resident School of Journalism faculty member.

## Graduate Research Facilities

Apart from the research facilities of separate departments and divisions, a number of specialized centers and offices have been created on campus, through the University of Missouri research administration, and through consortium efforts.

### Botany Research

Instructional and research programs in systematic and evolutionary botany have been developed by a consortium of four area universities—UMSL, Washington University, St. Louis University, and Southern Illinois University-Edwardsville. The program operates in conjunction with the Institute for Systematic and Evolutionary Botany of the Missouri Botanical Garden, one of the principal centers for botanical research in the United States. Under the consortium, the faculties, facilities, and collections on the four campuses and at the garden are shared, including the large herbarium and library at the garden, greenhouse facilities, scanning and transmission electronmicroscopes, a tropical field research station in the Canal Zone, and the four universities' course offerings.

### Environmental Health Center

The Environmental Health Center at the Columbia campus serves as a system-wide mechanism for the stimulation and coordination of research, teaching, and public service in areas related to man's environment and its effect on public health and the quality of living. The center concentrates on two broad research activities: the Environmental Surveillance Center, which is concerned with study of human and swine birth defects and the environmental factors which may contribute to these defects; and the Environmental Trace Substances Center, concerned primarily with research, training, and analytical services relating to the assessment of the environment's chemical composition. The center's principal function is to stimulate and support environmental studies within the university system, but it also serves as a regional and national center for ecological investigation.

### Industrial Development Studies

The Office of Industrial Development Studies is a cooperative effort of the University of Missouri and the Missouri Division of Commerce and Industrial Development. The

office, located on the Columbia campus, provides university research capabilities in support of industrial development studies, both public and private. Research is performed in most instances by experts on all four campuses; some studies are partially or totally prepared by office staff members, all of whom have had practical experience in the field.

The center works in cooperation with the university's industrial extension agents to insure responsiveness to interests, opinions, and needs of industry throughout the state. Drawing assistance from specialized research centers on the four campuses, the office provides services to industrial development organizations, governmental bodies, and private firms in such areas as market, product feasibility, plant location, and urban-rural industrial studies.

### MASUA Traveling Scholars

The university is a member of the Mid-America State Universities Association, which coordinates a traveling scholar program for its member institutions. The program provides doctoral students with the opportunity to pursue advanced studies for short periods of time at universities other than their own. Further information may be obtained from the Graduate School office.

### Medicine Research

The Sinclair Comparative Medicine Research Farm is a university-wide research facility located about five miles south of Columbia, Missouri. The farm offers both large and small animals as models for human health related conditions in the study of chronic disease and aging. Center staff members are working in the areas of biochemistry and nutrition, biostatistics, clinical medicine, genetics, microbiology, and pathology. Interested investigators and graduate students may use the Sinclair facility.

### Political Research

UMSL is a member of the Inter-University Consortium for Political Research, an academic partnership between the University of Michigan Center for Political Studies and more than 140 colleges and universities in the United States and abroad. The consortium is an interdisciplinary, interuniversity research and training facility for both students and

faculty in the social sciences. Through various consortium archives students and faculty have direct access to a variety of multipurpose data of a socio-political nature that may serve a variety of research and training needs. The UMSL Computer Center provides a full range of data processing services for consortium resources. Students and faculty are also eligible to participate in the consortium's summer training program, a series of intensive eight-week courses of interdisciplinary work for historians, political scientists, sociologists, and other social scientists.

#### **Research Reactor**

The Research Reactor is a university-wide facility located south of Columbia, Missouri. The facility, available for use by staff members and graduate students, includes a fluxtrap reactor currently operating at a power of five megawatts and offering the highest neutron flux of any university reactor in the country. Seventeen research laboratories specifically designed for research involving radiation are associated with the reactor. The reactor provides a variety of experimental facilities, including four pneumatic tubes servicing seven laboratories, six beam ports, twelve high flux irradiation positions adjacent to the reactor, and a neutron radiography facility. A nuclear science group provides services in trace element research, radioisotope production, nuclear chemistry research, and activation analysis.

#### **Social and Behavioral Sciences**

The Social and Behavioral Sciences Laboratory provides a controlled and flexible experimental setting for teaching and research at UMSL. The laboratory incorporates both small group interaction and simulation facilities as well as consultation services, audio-visual, and closed circuit video facilities for teaching and research. Direct computer access is available with plans for the establishment of data archives. The laboratory is available to both students and faculty.

#### **Water Resources Research**

The Water Resources Research Center at the Columbia campus encourages and coordinates university-wide research into problems relating to preservation and development of adequate pure water supplies and to prepare specialists in the water resources field. Principal emphasis is given to implementation of the Federal Water Resources Research Act of 1964, which provides for allotment and matching grant funding by the United States Department of the Interior. Funds available through the center may be used for support of water research, both basic and applied, in a variety of related fields.

Community Services

**Continuing Education-Extension**

An important mission of the University of Missouri is to provide educational opportunities for persons, regardless of educational experience or area of interest, to enhance their lives and make a contribution to community and state development. At UMSL, Continuing Education-Extension carries out this mission.

Through their continuing education-extension offices, the College of Arts and Sciences, School of Education, and School of Business Administration administer a wide variety of credit courses, non-credit programs, and problem-oriented research for the benefit of the people of greater St. Louis and beyond. Programs are offered both on and off campus. Research, generally of an applied, urban-related nature, is designed to solve specific problems of client groups.

*Arts and Sciences*

Continuing education-extension in arts and sciences includes credit courses and non-credit programs in all college departmental disciplines. Several interdisciplinary programs deal with such fields as gerontology, public policy, health care administration, and Asian studies. Faculty members and students are engaged in studies of community organization, population changes, taxation, and municipal and governmental service.

*Education*

The overall aim of the School of Education extension activities is to provide services which bring about better teaching and learning situations in educational settings. The programs and courses help students complete Missouri teacher certification requirements, as well as provide work toward advanced degrees and for inservice professional growth. The school extends instruction, research, and service to educational personnel in other parts of Missouri and the Midwest in addition to the St. Louis metropolitan area.

*Business Administration*

Continuing education programs in business are offered in several areas, including economic and organizational development, management improvement, and individual and professional growth. Programs range from

credit courses to brief, special seminars designed for specific problems of current interest. Many programs are open to the public while others are especially designed for a specific industry or business.

*Special Programs*

Special assistance for mature students returning to school is provided through the office for women's programs. Services include assistance in educational, vocational, and career planning, as well as short courses and workshops offered through the nationally recognized Discovery Program for Women. Special women's management programs are also available to assist business firms in complying with affirmative action requirements.

In addition, Continuing Education-Extension offers the UMSL Community Educational Program at Lindbergh High School, providing resident credit for graduate and undergraduate courses to south St. Louis residents.

General administrative and management support for the college and school divisions is provided through the Office of Continuing Education-Extension Management, located in the J.C. Penney Building.

## Confidentiality Policy

### *The Family Educational Rights and Privacy Act of 1974*

These statements are set forth as guidelines and procedures to implement the University of Missouri policy on student records developed from the Family Educational Rights and Privacy Act of 1974.

The University of Missouri-St. Louis as charged in the Act will annually inform its eligible students by including in the *Student Handbook*, the *Schedule of Courses*, the *General Catalog* and the *Current* (student newspaper) the following information:

1 "Education Records" are those records, files, documents and other materials which contain information directly related to a student and are maintained by the University. Those records made available under The Family Educational Rights and Privacy Act of 1974 are student financial aid, the student's cumulative advisement file, student health records, disciplinary records, the admissions file and the academic record.

The University of Missouri-St. Louis "Education Records" do not include:

- (a) Records of instructional, supervisory and administrative personnel and educational personnel ancillary thereto which are in the sole possession of the maker thereof and which are not accessible or revealed to any other person except a substitute.
- (b) The records and documents of the University of Missouri Police Department that are maintained solely for law enforcement purposes and are not available to persons other than law enforcement officials of the same jurisdiction.
- (c) In the case of persons who are employed by the University but are not in attendance at the University, records made and maintained in the normal course of business which relate exclusively to such person and that person's capacity as an employee where the records are not available for any other purpose.
- (d) All records on any University student which are created and maintained by a physician, psychiatrist, psychologist, or other recognized professional or para-professional acting in his professional or para-professional capacity, or assisting in that capacity, and which are created, maintained, or used only in connection with the provision of treatment to

the student, and are not available to anyone other than persons providing such treatment, provided, however, that such records can be personally reviewed by a physician or other appropriate professional of the student's choice.

2 *The University of Missouri-St. Louis recognizes "Directory Information/Public Information" to mean a student's name, telephone listing, date and place of birth, major field of study, participation in officially recognized activities and sports, weight and height of members of athletic teams, dates of attendance, degrees and awards received, and the most recent previous educational agency or institution attended by a student. All students must inform the Office of Admissions and Records before the end of the two-week period following the first day of classes that any or all of the information designated as directory information should not be released without the student's prior consent. The information listed above will become directory information or public information as of the first day of classes following the end of the two-week period in a regular semester and the first day of classes following the end of the one-week period during the Summer Session.*

3 University of Missouri-St. Louis students have access to the educational records identified in Paragraph 1 above. In accordance with Pub. L. 93-380, as amended, the University of Missouri-St. Louis will not make available to students the following materials:

- (a) Financial records of the parents of students or any information contained therein.
- (b) Confidential letters and statements of recommendation which were placed in the education records prior to January 1, 1975, if such letters or statements are not used for the purpose other than those for which they were specifically intended.
- (c) Confidential recommendations respecting admission to the University, application for employment and receipt of an honor or honorary recognition, where the student has signed a waiver of the student's rights of access as provided in 6.0404, the University Policy on Student Records.

4 The Director of Financial Aid, the appropriate Academic Dean, the Director of the Student Health Service, the Dean of



Student Affairs, the Director of Admissions and Registrar are the officials responsible for the maintenance of each type of record listed in Paragraph 1.

5 Any student may, upon request, review his or her records and if inaccurate information is included, may request the expunging of such information from his or her file. Such inaccurate information will then be expunged upon authorization of the official responsible for the file.

6 Students desiring to challenge the content of their record may request an opportunity for a hearing to challenge the content of his or her educational record in order to insure that the record is not inaccurate, misleading, or otherwise in violation of the privacy or other rights of the student, and to provide an opportunity for the correction or deletion of any such inaccurate, misleading or otherwise inappropriate data contained therein and to insert into such records a written explanation respecting the content of such records.

7 The University official charged with custody of the records will attempt to settle informally any disputes with any student regarding the content of the University's educational records through informal meetings and discussions with the student.

8 Upon request of the student or the University official charged with custody of the records of the student, a formal hearing shall be conducted, as follows:

(a) The request for a hearing shall be submitted in writing to the campus Chancellor who will appoint a hearing officer or a hearing committee to conduct the hearing.

(b) The hearing shall be conducted and decided within a reasonable period of time following the request for the hearing. The parties shall be entitled to 10 days prior written notice of the time and place of the hearing.

(c) The hearing shall be conducted and the decision rendered by an appointed hearing official or officials who shall not have a direct interest in the outcome of the hearing.

(d) The student shall be afforded a full and fair opportunity to present evidence relevant to the hearing.

(e) The decision shall be rendered in writing within a reasonable period of time after the conclusion of the hearing.

(f) Either party may appeal the decision of the hearing official or officials to the campus Chancellor. Appeal from the Chancellor's decision is to the President. Appeal from the President is to the Board of Curators.

9 The University of Missouri-St. Louis will mail grade reports to students at their permanent mailing address only. Grades will not be mailed to parents unless the students, in question, have completed the necessary authorization in the Registrar's office.

10 The University of Missouri-St. Louis may permit access to or release the educational records without the written consent of the student to the parents of the dependent student as defined in Section 152 of the Internal Revenue Code of 1954.

11 If any material or document in the educational record of a student includes information on more than one student, the student may inspect and review only such part of such material or document as relates to him or her or to be informed of the specific information contained in such part of such material.

12 Students desiring reproduction of copies of educational records will be charged at the rate of \$.10 per page. Official copies of transcripts will be charged at the rate of \$1.00 each and unofficial copies at the rate of \$.50 each.

# **Course Descriptions**

Following is the listing of courses offered by UMSL. The university reserves the right to cancel without notice any course listed in this bulletin or the *Schedule of Courses* for any semester or to withdraw any courses which do not have adequate enrollment at the close of registration. The following description of courses is meant to provide students with a general outline of course content and in no way should be considered as offers to contract.

**Course Numbering**

Each course bears a distinguishing number which identifies it within the department or academic unit and indicates, broadly, its rank. The numbering system is as follows:

0 to 09, nondegree credit.

1 to 99, primarily for freshmen and sophomores.

100 to 199, primarily for upperclassmen, no graduate credit.

200 to 299, for undergraduates and appropriate professional and graduate students, except those whose graduate majors are in the department in which the course is given.

300 to 399, for undergraduate, appropriate professional, and graduate students without restriction as to students' graduate majors.

400 to 499, primarily for graduate and appropriate professional students in special programs; upperclass students are admitted to courses in this series only with the approval of the graduate dean.

**Semester Guide**

Courses offered by the College of Arts and Sciences and School of Education indicate the semester in which they are customarily offered.

F fall

W winter

S summer (absence of this letter does not necessarily mean that the course is never offered in the summer)

Alt. F alternate fall

Alt. W alternate winter

Denotation that courses are offered in a given semester may mean there are plans to offer it either in day or evening hours. This information is tentative, and subject to change at any time without notice. It does not indicate offers to contract. For courses that are denoted as such consult the *Schedule of Courses*.

**General Education Requirement Courses**

Courses which fulfill the university's general education requirements, as outlined in the undergraduate section, are designated as follows:

Humanities requirement [H]

Natural sciences and mathematics requirement [SM]

Social sciences requirement [SS]

Since many departments offer courses in several subject areas, the following listing of courses alphabetically by subject area and their page references is provided for easy student reference.

- accounting (400 level) 179
- administration of justice 108
- adult education 183
- anthropology 170
- art 127
- astronomy 152
- atmospheric science 152
  
- biology 110
- business administration 175
- business management (400 level) 180
  
- chemistry 114
- Chinese 142
- comparative politics 158
- computer science 141
- counselor education 189
  
- early childhood education 193
- economics 118
- education 183
- educational administration 183
- educational evaluation and measurement 190
- educational foundations 184
- educational psychology 189
- educational statistics and research 185
- educational technology 185
- elementary education 193
- engineering 152
- English 121
- English composition 121
- English language 122
- English literature 122
  
- finance (400 level) 180
- French 142
  
- geography 121
- geology 152
- German 144
- Greek 145
  
- Hebrew 146
- history 131
  
- interdisciplinary courses 137
- international relations 159
- Italian 146
  
- Japanese 146
  
- Latin 146
  
- marketing (400 level) 181
- mathematical sciences 138
- music 128
  
- philosophy 149
- physical education 190
- physics 152
- political science 157
- Portuguese 146
- psychology 162
- public administration 158
- public law 157
  
- Russian 146
  
- secondary education 186
- Spanish 147
- special education 191
- speech communication 125
- social work 169
- sociology 166
  
- urban and regional politics 159

## Administration of Justice

Prerequisites may be waived by consent of department or instructor.

**70 Criminal Law and Procedure (3) (F, W)**  
An analysis of substantive criminal law and its procedural aspects. Formerly AOJ 220. [SS]

**71 Evidence (3) (F)**  
Fundamental questions of evidence and theory of proof, including hearsay, documentary proof, self-incrimination, relevance, and presumptions. Formerly AOJ 221. [SS]

**75 Crime and Punishment (3)**  
(Same as Psychology 75, Sociology 75, and Anthropology 75) An interdisciplinary course. An introduction to sociological and psychological explanations of crime and punishment. An examination of private and governmental responses to the threats of crime and delinquent behavior. [SS]

**90 Freshman Seminar (3) (F, W)**  
Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to 12 students. [SS]

**99 The City (3) (F, W)**  
(Same as History 99, Political Science 99, Psychology 99, Sociology 99, and Economics 99) An interdisciplinary course. Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission. [SS]

**101 Criminal Justice Processes and Institutions (5) (F, W)**  
Prerequisite: Sophomore standing or consent of instructor. A survey of the historical development and the current status of American criminal justice. Processes, institutions, and significant problems of the various components will be analyzed.

**201 The Criminal Justice System: Conflicting Perspectives I (3) (F)**  
Prerequisite: AOJ 101. An examination of the conflicting and converging needs and skills of three social roles necessary for a sound criminal justice system in a democratic society. The objectives, activities, and skills of the citizen, criminal justice professional, and social scientist will be identified and analyzed. [SS]

**202 The Criminal Justice System: Conflicting Perspectives II (3) (W)**  
Prerequisite: AOJ 201 or consent of instructor. An examination of competing social interests served by

the criminal justice system, past and present. Attention will focus on the need for and the nature of a criminal law that serves the public interest and not private interests. [SS]

**203 Regional Organization of Criminal Justice Resources (3)**  
Prerequisite: AOJ 70 and 101. Crime and criminal justice resources in relation to the development of metropolitan regions. Congruent and incongruent patterns of criminal and delinquent activity and criminal justice organization. Policy and planning considerations. [SS]

**205 The Juvenile Justice System (3) (F, W)**  
Prerequisite: AOJ 101 or consent of instructor. Intensive analysis of the social administration of juvenile justice within the U.S. Particular emphasis will be placed on the decision-making process of police, court and probation officials regarding apprehension and processing of juveniles. Recent Supreme Court decisions and citizen efforts to revise the Juvenile Code will also be examined. [SS]

**215 Criminal Justice Data (3)**  
An analysis of data needs in criminal justice agencies. Emphasis will be placed upon data as it relates to administrative, policy planning, and program evaluation requirements, as well as the ethical criteria for its release. [SS]

**225 The Juvenile and the Law (3) (F, W)**  
Prerequisite: Junior standing. A study of the relationship of the civil and administrative law as an instrument for the control and protection of juveniles. Subject matter will be discussed in relationship to the legally protected rights of juveniles. [SS]

**227 Urban Law: Poverty and the Justice System (3) (F, W)**  
Prerequisite: AOJ 70 or equivalent, or consent of the instructor. Examination of administrative regulations and the civil law process as it affects the life of the urban and the rural and the poor. [SS]

**250 Police Administration (3) (F)**  
Prerequisite: AOJ 101 or consent of instructor. Organization and administration of police systems; peculiar characteristics of police organizations and police personnel, relation of police departments to other public agencies; control and responsibility of police departments. In general, the application of generalizations from public administration to police systems. [SS]

**251 Special Administrative Problems in the Administration of Justice (1-6)**  
Prerequisite: Consent of instructor. Selected topics, approved by the faculty, to fill special agency educational needs offered only in special seminars, workshops, conferences, and institutions in

cooperation with Continuing Education—Extension [SS]

**260 Police-Community Relations (3) (W)**

Prerequisite: AOJ 101 or consent of instructor. An analysis of current police-community relations in large central cities, and a study of the development of police-community relations units. An analysis of the internal and external problems involved in a successful program development. [SS]

**290 Special Readings (1-6) (V)**

Prerequisite: Consent of instructor. Individualized study, under regular faculty supervision, designed to meet particular educational needs of selected students. [SS]

**310 Community Approaches to Prevention and Control of Crime and Delinquency (3) (F, W)**

Prerequisite: AOJ 101 and senior standing, or consent of instructor. An analysis of the rationale and the principles of community organizations as they seek to address the problems of crime and delinquency. Programs in the St. Louis metropolitan area will be used as case studies. [SS]

**325 Criminal Law in Action (3) (F, W)**

Prerequisite: AOJ 70 or equivalent, and senior standing or consent of instructor. An examination of the legal and social objectives of the criminal law and the diverse limitations of the exercise of police power. [SS]

**330 Correctional Institutions (3) (F, W)**

Prerequisite: AOJ 101 and senior standing, or consent of instructor. The correctional setting as an aspect of the criminal justice system. An analysis of the administrative involvement and a study of the modes of organization and management which seem applicable to these types of settings. [SS]

**340 Probation and Parole (3) (W)**

Prerequisite: AOJ 101 and senior standing, or consent of instructor. The historical development of the rehabilitative ideal of probation and parole. An analysis of the principles of probation and parole, both juvenile and adult. [SS]

**351 Special Seminar on Problems in the Criminal Justice Process (1-6)**

Prerequisite: Consent of instructor. Advanced seminar dealing with selected subjects, approved by the faculty, to fill special agency educational needs. Offered only in specially designed educational formats in cooperation with Continuing Education—Extension. [SS]

**360 Comparative Justice System (3)**

Prerequisite: AOJ 70 and 101 and senior standing. Analysis of the criminal justice systems of selected nations in an attempt to identify similarities and

dissimilarities with American practice. Particular attention will be focused upon the police and corrections systems. [SS]

**380 Seminar in Administration of Justice (3)**

Prerequisite: Sociology 130, AOJ 70 and 101 and senior standing or consent of instructor. Study of selected special problems in the administration of justice. (May be repeated once for credit.) [SS]

**395 Field Placement (3)**

Prerequisite: Sociology 30, AOJ 70 and 101 or consent of instructor. Field placement under faculty supervision in administration of justice agencies. (May be repeated once for credit.) [SS]

**399 Independent Study and Research (3)**

Prerequisite: Sociology 120, AOJ 70 and 101 and senior standing or consent of instructor. Directed research and reading. May involve the performance of a research task in cooperation with an operating criminal justice agency. (May be repeated once for credit.) [SS]

## Biology

Prerequisites may be waived by consent of department or instructor.

\*Starred prerequisites may be taken concurrently with listed offering.

### 1 General Biology (3)

Emphasis on fundamental principles of biology. Biology 1 can be applied toward fulfillment of the general education requirement in science. Biology 1 does not satisfy the prerequisite requirements of other courses in biology at the 200 level or above. Students who plan to pursue a career in medicine or one of the medical-oriented professions should enroll in Biology 10 rather than Biology 1. Three hours lecture per week. [SM]

### 3 General Biology Laboratory (2)

Prerequisite: \*Biology 1. Laboratory course to accompany Biology 1. Biology 3 can be used to fulfill the general education requirements in a laboratory science. Biology 3 does not meet the prerequisite requirements for other courses in biology. Three and one-half hours laboratory per week. [SM]

### 10 Introductory Biology (5)

Prerequisite: \*Chemistry 11. A one semester prerequisite for students intending to major in biology or take biology courses at the 200 level or above. This course offers an introduction to some of the biological properties and relationships of organisms, both plant and animal. The laboratory work emphasizes an experimental approach to biological processes. Three hours lecture and three and one-half hours laboratory per week. [SM]

### 90 Freshman Seminar (3)

Prerequisite: Freshman standing and high school biology. Topics to be announced for each section. Weekly seminars and individual conferences. Sections limited to 12-15 students. [SM]

### 110 The Biology of Man (3)

Prerequisite: Biology 1 or consent of instructor. Lectures and assigned readings concerning man's characteristics as a primate and his changing relationship to the environment. Discussions of aggression, sexuality, modern medicine, human evolution, environmental exploitation, and other topics of current interest. Three hours lecture per week. [SM]

### 115 Human Heredity and Evolution (3)

Prerequisite: Biology 1. The study of heredity and evolution with special reference to human populations. Three hours lecture per week. [SM]

### 116 Microbiology and Man (3)

Prerequisite: Biology 1 or its equivalent. A survey of microbial structure, genetics, and physiology, with special emphasis on their interaction with man.

Transmission and control of such organisms will be discussed in relation to maintenance of health. Three hours lecture per week. [SM]

### 118 Microbiology and Man Laboratory (2)

Prerequisite: Must be taken concurrently with Biology 116. Standard techniques for identification, growth, and control of microorganisms. Three and one-half hours laboratory per week. [SM]

### 120 Environmental Biology (3)

Prerequisite: Biology 1. An examination of the biological basis of current and environmental problems, with emphasis upon landscapes and populations. Three hours lecture per week. [SM]

### 213 General Physiology (3)

Prerequisite: Biology 10 and Chemistry 11. The basic functional aspects of organ systems in relation to the physiochemical properties of protoplasm. Three hours lecture per week. [SM]

### 215 General Physiology Laboratory (2)

Prerequisite: \*Biology 213. Instrumental and experimental studies in physiology. Three and one-half hours laboratory per week. [SM]

### 216 Microbiology (3)

Prerequisite: Biology 10. A study of microorganisms, their metabolism, genetics, and their interaction with other forms of life. Three hours lecture per week. [SM]

### 218 Microbiology Laboratory (2)

Prerequisite: \*Biology 216. Experimental studies and procedures of microbiological techniques. Three and one-half hours laboratory per week. [SM]

### 220 General Ecology (3)

Prerequisite: Biology 10. An examination of the relationships between living organisms and their environment. Three hours lecture per week. [SM]

### 222 General Ecology Laboratory (2)

Prerequisite: \*Biology 220. An analysis of factors influencing the abundance and distribution of living organisms. Three and one-half hours laboratory per week. [SM]

### 224 Genetics (3)

Prerequisite: Biology 10. The fundamental principles of inheritance, including classical genetic theory as well as recent advances in the molecular basis of heredity. Three hours lecture per week. [SM]

### 226 Genetics Laboratory (2)

Prerequisite: \*Biology 224. Laboratory to accompany Biology 224. Three and one-half hours laboratory per week. [SM]

**235 Development (3)**

Prerequisite: Biology 10. (Biology 224 recommended, but not required.) Basic principles of development from the point of view of growth, morphogenesis, and differentiation. Three hours lecture per week. [SM]

**237 Development Laboratory (2)**

Prerequisite: \*Biology 235. Laboratory to accompany Biology 235. Three and one-half hours laboratory per week. [SM]

**242 Population Biology (3)**

Prerequisite: Biology 224. The structure, operation, and evolution of populations. Three hours lecture per week. [SM]

**244 Population Biology Laboratory (2)**

Prerequisite: \*Biology 242. Laboratory to accompany Biology 242. Three and one-half hours laboratory per week, and/or field studies to be arranged. [SM]

**250 Plant Form and Function (3)**

Prerequisite: Biology 10. A general survey of the plant groups from algae through angiosperms. Morphology, reproduction, and central physiological concepts unique to the plant kingdom will be discussed. Three hours lecture per week. [SM]

**252 Plant Form and Function Laboratory (2)**

Prerequisite: \*Biology 250. Examination of representatives of the plant kingdom and experimentation in plant physiology. Three and one-half hours laboratory per week. [SM]

**264 Invertebrate Biology (3)**

Prerequisite: Biology 10 or consent of instructor. Development, structure, function, and interrelationship of invertebrate animals with particular attention to phylogenetic aspects. Three hours lecture per week. [SM]

**266 Invertebrate Biology Laboratory (2)**

Prerequisite: \*Biology 264. Laboratory to accompany Biology 264. Dissection and analysis of invertebrates with an emphasis on structure and function. Three and one-half hours laboratory per week. [SM]

**276 Biological Chemistry (3)**

Prerequisite: Chemistry 261 and Biology 10. The chemistry and function of the living cell and its constituents, and the interactions and conversions of intracellular substances. Three hours lecture per week. [SM]

**278 Biological Chemistry Laboratory (2)**

Prerequisite: \*Biology 276. Experiments designed to illustrate biochemical principles and modern biochemical procedures. Three and one-half hours laboratory per week. [SM]

**280 Animal Behavior (3)**

Prerequisite: Biology 10 or consent of instructor. The study of invertebrate and vertebrate behavior, including developmental, genetic, and ecological aspects of behavior; behavior interactions within and between populations. Three hours lecture per week. [SM]

**282 Animal Behavior Laboratory (2)**

Prerequisite: \*Biology 280. Observational and experimental studies of animal behavior in the field and laboratory. Three and one-half hours laboratory per week. [SM]

**285 Methods of Teaching Biology in Secondary Schools (3)**

(Same as Education 285) Prerequisite: Education 163 and a near-major in biology. A study of the scope and sequence of the life science courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. To be taken concurrently with student teaching. [SM]

**289 Seminar (2)**

Required of all biology majors during a semester of their senior year. Presentation of selected papers by students. [SM]

**290 Research (1-10)**

Prerequisite: Consent of instructor. Research in area selected by student in consultation with faculty member. Credit arranged. [SM]

**305 Morphology of Nonvascular Plants (3)**

Prerequisite: Biology 250 or consent of instructor. An intensive study of algae through the mosses and liverworts, stressing relationships between the groups. Field studies and phytocology stressed. Three hours lecture per week. [SM]

**306 Morphology of Vascular Plants (3)**

Prerequisite: Biology 250 or permission of instructor. An intensive study of ferns through angiosperms, stressing relationships between the groups. Field studies and phytocology stressed. Three hours lecture per week. [SM]

**307 Nonvascular Plant Laboratory (2)**

Prerequisite: \*Biology 305. Laboratory to accompany Biology 305. Three and one-half hours laboratory per week. [SM]

**308 Vascular Plant Laboratory (2)**

Prerequisite: \*Biology 306. Laboratory to accompany Biology 306. Three and one-half hours laboratory per week. [SM]

**310 Cellular Biology (3)**

Prerequisite: Biology 224 and \*276. Chemistry, structure, and function of cells. Three hours lecture per week. [SM]



**313 Comparative Animal Physiology (3)**

Prerequisite: Biology 213 and junior standing or permission of instructor. The unity and diversity of physiological mechanisms found throughout the animal kingdom. Three hours lecture per week. [SM]

**314 Virology (3)**

Prerequisite: Biology 216. A comparative study of plant, animal, and bacterial viruses, including their physical and chemical structures, reproduction, genetics, and biological importance. Three hours lecture per week. [SM]

**315 Comparative Animal Physiology Laboratory (2)**

Prerequisite: \*Biology 313. Experiments designed to accompany Biology 313 and to introduce students to research techniques in physiology. Three and one-half hours laboratory per week. [SM]

**316 Virology Laboratory (2)**

Prerequisite: Biology 218 or equivalent and \*Biology 314. Laboratory to accompany Biology 314. Three and one-half hours laboratory per week. [SM]

**317 Immunobiology (3)**

Prerequisite: Biology 276, Chemistry 261. The fundamental principles and concepts of immunology and immunochemistry. Emphasis on the relation of immunological phenomena to biological phenomena and biological problems. Three hours lecture per week. [SM]

**319 Immunobiology Laboratory (2)**

Prerequisite: \*Biology 317. Basic experimental procedures in immunology. Introduction to experimental evidence underlying concepts of immunology. Three and one-half hours laboratory per week. [SM]

**320 Neurophysiology (3)**

Prerequisite: Biology 213 and junior standing or consent of instructor. A study of cellular neurophysiology including initiation, propagation, and transmission of nervous signals. Three hours lecture per week. [SM]

**321 Advanced Genetics (3)**

Prerequisite: Biology 224. Selected topics in genetic theory. May be taken more than once for credit. Three hours lecture per week. [SM]

**322 Neurophysiology Laboratory (2)**

Prerequisite: \*Biology 320 and consent of instructor. Experiments designed to accompany Biology 320. Techniques and special research problems emphasized. [SM]

**323 Advanced Genetics Laboratory (2)**

Prerequisite: \*Biology 321. Instrumentation and experimental studies in genetic analysis. Three and one-half hours laboratory per week. [SM]

**326 Microbial Genetics (3)**

Prerequisites: Biology 216 and 224 or equivalent. An analysis of the mechanisms of variation in bacteria and viruses including mutation adaptation, sexual recombination, transduction, and transformation. [SM]

**328 Microbial Genetics Laboratory (2)**

Prerequisites: Biology 218 or equivalent and \*Biology 326. Laboratory to accompany Biology 326. Three and one-half hours laboratory per week. [SM]

**330 Advanced Development (3)**

Prerequisite: Biology 235. A discussion of experimental approaches as applied to the analysis of development. Three hours lecture per week. [SM]

**332 Advanced Development Laboratory (2)**

Prerequisite: \*Biology 330. Instruction and practice in the application of experimental techniques to the study of development. Three and one-half hours laboratory per week to be arranged. [SM]

**334 Plant Physiology and Development (3)**

Prerequisites: Biology 250, 276 or Chemistry 261 or permission of instructor. An examination of the physiological processes associated with plant growth and development. Three hours lecture per week. [SM]

**336 Plant Physiology and Development Laboratory (2)**

Prerequisite: \*Biology 334. Laboratory to accompany Biology 334. Three and one-half hours laboratory per week. [SM]

**342 Population and Community Ecology (3)**

Prerequisite: Biology 220, 242. Studies of the structure and organization of natural communities stressing the abundance and distribution of species, the regulation of species diversity, and the evolution of demographic parameters in populations. Three hours lecture per week. [SM]

**344 Population and Community Ecology Laboratory (2)**

Prerequisite: \*Biology 342. Laboratory and field studies of the organization of communities. Three and one-half hours laboratory per week. [SM]

**346 Evolution (3)**

Prerequisite: Biology 224 and Chemistry 261. The course and mechanisms of organic evolution, covering topics ranging from biochemical evolution to comparative anatomy and population genetics. [SM]

**350 Environmental Physiology (3)**

Prerequisite: Biology 213 or consent of instructor. Physiological responses of animals to environmental changes. Adaptation of organisms to various environments. [SM]

**352 Environmental Physiology Laboratory (2)**

Prerequisite: Biology 313, \*Biology 350, or consent of instructor. A laboratory course to accompany Biology 350. [SM]

**360 Techniques in Electron Microscopy (2)**

Prerequisite: Biology 10 and junior standing or consent of instructor. A general consideration of the application of electron microscopy to biological research. Discussion of transmission and scanning electron microscopy and associated techniques of specimen preparation. Designed for the professional biologist. Two hours lecture per week. [SM]

**362 Electron Microscopy Laboratory (3)**

Prerequisite: Must be taken concurrently with Biology 360. (Permission of instructor required.) Students will develop skill in techniques associated with transmission and scanning electron microscopy and learn instrument operation and minor servicing individual research problems. Seven hours laboratory per week. [SM]

**364 Adaptive Radiation of the Vertebrates (3)**

Prerequisite: 10 hours of biology and upper-division standing. An examination of the adaptive radiation and consequent physiology, behavior, and ecology of the vertebrates. Three hours lecture per week. [SM]

**366 Adaptive Radiation of the Vertebrates Laboratory (2)**

Prerequisites: \*Biology 364. A study of the biological characteristics of vertebrate animals conducted in the laboratory and the field. Three and one-half hours laboratory or field studies per week, or three weeks daily during pre-session. [SM]

**370 General and Comparative Endocrinology (3)**

Prerequisite: Biology 213 and 313 and junior or higher standing or consent of instructor. A survey of chemical coordinating mechanisms with special emphases on the evolutions of hormonal control systems. Three hours lecture per week. [SM]

**372 General and Comparative Endocrinology Laboratory (2)**

Prerequisite: \*Biology 370. An introduction of techniques and procedures used in endocrine research. Three and one-half hours laboratory per week. [SM]

**376 Advanced Biological Chemistry (3)**

Prerequisite: Biology 276. Topics include control of cellular metabolism, membrane transport mechanisms of action of enzymes and hormones, and enzyme kinetics. Three hours lecture per week. [SM]

**378 Advanced Biological Chemistry Laboratory (2)**

Prerequisites: Biology 278 or consent of instructor. Independent projects related to analytical and

metabolic control, using advanced analytical and synthetic procedures. Three and one-half hours laboratory per week. [SM]

**380 Advanced Animal Behavior (3)**

Prerequisite: Biology 280. Selected topics in animal behavior theory. May be taken more than once for credit. Three hours lecture per week. [SM]

**381 Biosystematics (3)**

Prerequisites: Biology 10 and junior standing or consent of instructor. Biosynthetic relationships of secondary compounds and their implications to taxonomy, phylogeny, and population biology. Three hours lecture per week. [SM]

**382 Advanced Animal Behavior Laboratory (2)**

Prerequisite: \*Biology 380. Advanced observational and experimental studies of animal behavior in the field and laboratory. [SM]

**383 Biosystematics Laboratory (2)**

Prerequisite: Biology 381 (must be taken concurrently). Techniques and instrumentation necessary for the isolation and identification of various types of secondary compounds considered. Three and one-half hours laboratory per week. [SM]

**384 Behavioral Genetics (3)**

Prerequisites: Biology 224 and 280 or equivalent. The genetic analysis of behavioral characteristics. Three hours lecture per week. [SM]

**392 Selected Topics (1-10)**

Prerequisite: Junior standing and consent of instructor. Selected topics in biology. The topics will vary each semester. Topics offered for the following semester will be available in the departmental office. Credit arranged. May be taken more than once for credit. [SM]

**395 Field Biology (5)**

Prerequisite: Three courses in biology and consent of instructor. Intensive study of the flora and fauna of selected areas of the North American continent including a ten-day field trip during spring recess and associated laboratory work. The area studied will be announced in the schedule of courses. Note: There is a specific fee charged for this course. [SM]

**396 Marine Biology (3)**

Prerequisites: 8 hours of biology and consent of instructor. A survey of the major groups of marine plants and animals and their interactions in the various North American marine communities. Three hours lecture per week. [SM]

**398 Marine Biology Laboratory (2)**

Prerequisite: Biology 396. Intensive laboratory and field study of selected North American marine communities. Consult the instructor for the area to be visited. Students must pay their own travel and living expenses. [SM]

## Chemistry

### 485 Problems in Teaching College Biology (3)

(Same as Education E485)

Prerequisite: Teaching experience, 30 semester hours in biology and consent of instructor. Basic philosophies underlying undergraduate biology education at the college level will be presented and examined with concern for establishment of an individual philosophy in the prospective college teacher. Teaching techniques suitable for college-level instruction will be considered with respect to current research findings. [SM]

### 489 Graduate Seminar (2)

Presentation and discussion of various research problems in biology. Graduate student exposure to the seminar process. [SM]

### 490 Graduate Research in Biology (1-10)

Research in area selected by student in consultation with faculty members. May be taken for a maximum of 10 hours. [SM]

### 492 Topics in Biology (3)

Indepth studies of selected topics in contemporary biology. May be repeated. Three hours lecture per week. [SM]

Prerequisites may be waived by consent of department.

\*Starred prerequisites may be taken concurrently with listed offering.

### 1 General Chemistry (3) (F, W)

Presents a broad introductory survey of chemical principles. Chemistry 1 does not satisfy the prerequisites of any course except Chemistry 3. No student may take both Chemistry 1 and Chemistry 10 for credit. Chemistry majors may not include both Chemistry 1 and Chemistry 11 in the 120 hours required for graduation. Three hours lecture per week. [SM]

### 3 General Chemistry Laboratory (2) (F, W)

Prerequisite: Chemistry \*1 or \*10. Experiments to acquaint students with chemistry in the laboratory. These will include topics such as the role of chemistry in pollution detection, pollution control, industry, and forensic science, and with emphasis on the local area. [SM]

### 10 Chemistry in Society (3) (F, W)

A survey of chemistry and its relevance to contemporary problems, including an introduction to important chemical principles as applied to air and water pollution, the chemistry of living systems, population, energy production, and other topics. Chemistry 10 does not satisfy the prerequisites of any course except Chemistry 3. No student may take both Chemistry 1 and Chemistry 10 for credit. Chemistry majors may not include both Chemistry 10 and Chemistry 11 in the 120 hours required for graduation. [SM]

### 11 Introductory Chemistry I (5) (F, W)

Prerequisite: Mathematics through college algebra and trigonometry (may be taken concurrently). Presents an introduction to the fundamental laws and theories of chemistry. Laboratory experiments are designed to demonstrate some aspects of qualitative and quantitative analysis and to develop skills in laboratory procedures. Chemistry majors may not include both Chemistry 1 and 11 nor both Chemistry 10 and 11 in the 120 hours required for graduation. Three hours lecture and one hour discussion per week; three and one-half hours lab per week. [SM]

### 12 Introductory Chemistry II (5) (F, W)

Prerequisite: Chemistry 11 or advanced placement. Lecture and laboratory are a continuation of Chemistry 11. Three hours lecture and one hour discussion per week; three and one-half hours laboratory weekly. [SM]

### 13 Special Topics in Introductory Chemistry (Credit arranged)

Prerequisite: Consent of instructor. A lecture or laboratory course to assist transfer students in

meeting the requirements of Chemistry 11 and 12. [SM]

**122 Quantitative Analysis (3) (F, W)**

Prerequisite: Chemistry 12. Principles and practice of elementary quantitative analytical chemistry. Laboratory work will emphasize instrumental techniques, electrochemistry and some spectrophotometry. One and one-half hours lecture and four and one-half hours laboratory weekly. [SM]

**190 Energy (3)**

(Same as Physics 190) Prerequisite: Junior standing. Perspectives and approaches to the energy problem from a physical and social science viewpoint. The course will involve lectures given by physical and social scientists and also assisted research by students of various aspects of energy production, conversion, use, environmental impact, and policy determination. [SM]

**202 Introduction to Chemical Literature (1) (W)**

Prerequisite: Chemistry \*262. The course will familiarize the student with the literature of chemistry and its use. One hour lecture per week. [SM]

**231 Physical Chemistry I (3) (F, W)**

Prerequisite: \*Chemistry 122, \*Mathematics 201, and Physics 111 (or equivalent). Principles of physical chemistry including thermodynamics, theory of gases, phase equilibria, kinetics, crystal structure, spectroscopy, and quantum mechanics. Three hours lecture per week. [SM]

**232 Physical Chemistry II (3) (F, W)**

Prerequisite: Chemistry 231. Continuation of Chemistry 231. Three hours lecture per week. [SM]

**233 Laboratory in Physical Chemistry I (2) (F, W)**

Prerequisite: \*Chemistry 231. Experiments designed to illustrate principles introduced in Chemistry 231. One hour lecture and four and one-half hours laboratory per week. [SM]

**234 Laboratory in Physical Chemistry II (2) (F, W)**

Prerequisite: Chemistry \*232, 233. Experiments designed to illustrate principles introduced in Chemistry 232. One hour lecture and four and one-half hours laboratory per week. [SM]

**261 Structural Organic Chemistry (3) (F, W)**

Prerequisite: Chemistry 12. An introduction to the structure, properties, synthesis and reactions of aliphatic and aromatic carbon compounds. Three hours lecture per week. [SM]

**262 Organic Reactions (3) (F, W)**

Prerequisite: Chemistry 261. A systematic study of organic reactions and their mechanisms; organic synthetic methods. Three hours lecture per week. [SM]

**263 Techniques of Organic Chemistry (2) (F, W)**

Prerequisite: Chemistry 261 or consent of instructor. An introduction to laboratory techniques and procedures of synthetic organic chemistry. One hour lecture and four and one-half hours laboratory per week. [SM]

**264 Synthetic and Analytical Methods of Organic Chemistry (2) (F, W)**

Prerequisite: Chemistry \*262, 263. Advanced techniques; synthesis, separation, and identification of organic compounds by classical and instrumental techniques. One hour lecture and four and one-half hours laboratory per week. [SM]

**280 Methods of Teaching Chemistry in Secondary Schools (3) (F, W)**

(Same as Education 268) Prerequisite: Education 163 and a near-major in the subject matter. A study of the scope and sequence of the science courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. To be taken concurrently with student teaching.

**289 Seminar (1 or 2) (F, W)**

Prerequisite: \*Chemistry 202. Presentation of papers by students, faculty, and invited speakers. All majors must enroll for credit during their senior year. If taken during the day, the student must enroll for two semesters, one credit per semester. If taken in the evening, the student must enroll for one semester, and will receive two credits. [SM]

**290 Chemical Research (Credit arranged) (F, W)**

Prerequisite: Consent of instructor. Independent laboratory and library study, in conjunction with faculty member, of fundamental problems in chemistry. [SM]

**310 History of Chemistry (3)**

Prerequisite: Chemistry 12 or consent of instructor. The development of chemistry, including early theories of matter, alchemy, iatrochemistry, the period of Lavoisier, and selected topics from the 19th and 20th centuries. Three hours lecture per week. [SM]

**324 Instrumental Analysis (3) (F, W)**

Prerequisite: Chemistry 234. Modern instrumental methods, including nuclear magnetic resonance, electron spin resonance, mass spectrometry, spectrophotometry, x-ray diffraction, and others. Two hours lecture and three and one-half hours laboratory per week. [SM]

**325 Qualitative Organic Analysis (3)**

Prerequisite: Chemistry 264. Laboratory and instrumental methods for the systematic identification of organic compounds. One hour lecture and seven hours laboratory per week. [SM]

**333 Thermodynamics (3) (F)**

Prerequisite: Chemistry 232. Selected advanced topics including solid-state, non-equilibrium, and statistical thermodynamics. Three hours lecture per week. [SM]

**336 Introduction to Quantum Chemistry (3) (W)**

Prerequisite: Chemistry 232 or consent of instructor. A brief but quantitative introduction to the application of quantum mechanics to problems in chemistry, covering the uncertainty principle, operators, solution of Schrodinger's equation for simple systems, perturbation theory, variation methods, interaction of radiation with matter, atomic and molecular structure, and theory of collisions. Three hours lecture per week. [SM]

**341 Inorganic Chemistry I (3) (W)**

Prerequisite: Chemistry \*232 and \*262. A systematic study of the structure and properties of the elements and their compounds, with emphasis on the correlation of chemical properties with theoretical concepts. Three hours lecture per week. [SM]

**342 Inorganic Chemistry II (3) (F)**

Prerequisite: Chemistry 341. Continuation of Chemistry 341 with emphasis on such topics as metals, non-aqueous solvents, chemical dynamics, organometallic chemistry, chemistry of the less common elements, and certain frontier areas. Three hours lecture per week. [SM]

**343 Inorganic Reactions (2) (F)**

Prerequisite: \*Chemistry 341. The more sophisticated techniques of physical and analytical chemistry will be used to study inorganic compounds and their reactions. One hour lecture and four and one-half hours laboratory per week. [SM]

**352 Nuclear Chemistry (3)**

Prerequisite: Chemistry 232. Properties of radioactive nuclei, nature of radioactivity, nuclear reactions, and applications of nucleonics to chemistry. Three hours lecture per week. [SM]

**361 Advanced Organic Chemistry (3) (W)**

Prerequisite: Chemistry 262. Contemporary developments in the study of the structure of carbon compounds and the mechanism of their reactions. Selected topics such as natural products, heterocyclic compounds, stereochemistry, aromaticity, reaction intermediates, and photochemistry will be included. Three hours lecture per week. [SM]

**363 Advanced Organic Synthesis (2)**

Prerequisite: Chemistry 264. Advanced synthetic methods of organic chemistry. One hour lecture and seven hours laboratory per week. [SM]

**366 Physical Organic Chemistry (3) (F)**

Prerequisite: Chemistry \*262 and \*232. Advanced topics in the theory of organic chemistry, including conformational analysis, reaction kinetics and mechanisms, and transition state theory. Three hours lecture per week. [SM]

**371 Biochemistry (3) (F)**

Prerequisite: Chemistry 263. The isolation, chemical characterization, and function of the structural and catalytic components of living cells and subcellular particles. Three hours lecture per week. [SM]

**372 Advanced Biochemistry (3) (W)**

Prerequisite: Chemistry 371. Selected advanced topics in the chemistry of life processes. Three hours lecture per week. [SM]

**373 Biochemical Techniques (2) (F)**

Prerequisite: \*Chemistry 371. Laboratory study of biochemical processes in cellular and subcellular systems with emphasis on the isolation and purification of proteins (enzymes) and the characterization of catalytic properties. One hour lecture and three and one-half hours laboratory per week. [SM]

**374 Advanced Biochemistry Laboratory (2) (W)**

Prerequisite: Chemistry 372 and \*373. Continuation of Chemistry 373. Laboratory to accompany Chemistry 372. One hour lecture and three and one-half hours laboratory per week. [SM]

**380 The Teaching of Chemistry in Colleges and Universities (1)**

Prerequisite: Consent of instructor. A study of the history of the teaching of chemistry and the methods of instruction and evaluation used in the discipline.

**381 Special Topics (1-10)**

Prerequisite: Consent of instructor. A reading and seminar course in selected advanced topics. Three hours lecture per week. [SM]

**414 Molecular Spectroscopy (3)**

Prerequisite: Chemistry 232. A broad treatment of the interaction of electromagnetic radiation with matter, emphasizing the unity of such interactions. Interpretation of molecular structure in terms of molecular, electronic, and geometric structure and dynamics. Description and interpretation of physical techniques applied to chemistry. Three hours lecture per week. [SM]

**415 Organometallic Chemistry (3)**

Prerequisite: Consent of instructor. A systematic study of the compounds containing a carbon-metal or a carbon-metalloid bond. Emphasis will be placed upon the structural types and chemical reactivity of this class of compounds. Topics will also include the role of organometallic compounds in synthesis and

their catalytic behavior. Three hours lecture per week. [SM]

**416 Chemical Applications of Group Theory (3)**

Prerequisite: Chemistry 232. A brief introduction to the fundamental relationships of group theory. Application of group theory to molecular orbital theory, molecular vibrations, and molecular spectra. Three hours lecture per week. [SM]

**417 Environmental Chemistry (3)**

Prerequisite: Consent of instructor. Selected topics in the chemistry of the environment including air and water pollution. Subjects to be discussed include photochemical smog, gaseous and particulate contamination, biodegradability of chemicals, and chemical effects of contaminants on living species. Three hours lecture per week. [SM]

**431 Advanced Chemical Calculations (3)**

Prerequisite: Mathematics 201 and Chemistry 232. Advanced application of analytical techniques to chemical problems; complex variables, linear algebra, and series techniques. Three hours lecture per week. [SM]

**433 Statistical Mechanics (3)**

Prerequisite: Chemistry 333 and 431. Consideration of topics of chemical-physical interest including thermophysical properties of fluids and solids, Fermi-Dirac and Bose-Einstein fluids, theory of fluctuations, and irreversible processes. Three hours lecture per week. [SM]

**434 Interaction of Electromagnetic Radiation and Matter (3)**

Prerequisite: Chemistry 436. Treatment of the theoretical description of interaction between atoms and molecules and electromagnetic fields. Includes such topics as electromagnetic field theory, spin systems in electromagnetic fields, time-dependent perturbation theory, emission and absorption of radiation, and selected applications to chemical and physical systems. Three hours lecture per week. [SM]

**436 Quantum Chemistry II (3)**

Prerequisite: Chemistry 336 and 431. Advanced theoretical concepts; angular momentum, atomic and molecular structure. Three hours lecture per week. [SM]

**439 Special Topics in Physical Chemistry (3)**

Prerequisite: Consent of instructor. Selected topics in physical chemistry; may be taken more than once for credit. [SM]

**441 Typical Element Chemistry (3)**

Prerequisite: Chemistry 342. Chemistry of the main group elements and their compounds including such topics as electron deficient compounds; acids, bases, and non-aqueous solvents; catenation and inorganic polymers; the solid state; organo-typical element

chemistry, and energetics. Three hours lecture per week. [SM]

**442 Coordination Chemistry (3)**

Prerequisite: Chemistry 342. The chemistry of the coordination compounds of the transition metals including such topics as kinetics and mechanisms of reaction, stereochemistry, ligand field theory, stability, and organotransition element chemistry. Three hours lecture per week. [SM]

**443 Physical Inorganic Chemistry (3)**

Prerequisites: Chemistry 342, 414, and 416. Study of physical concepts with emphasis on physical methods applied to inorganic systems, spectral and magnetic properties of coordination compounds, and application of bonding theories to inorganic chemistry. Three hours lecture per week. [SM]

**449 Special Topics in Inorganic Chemistry (3)**

Prerequisite: Consent of instructor. Selected topics in inorganic chemistry; may be taken more than once for credit. [SM]

**463 Stereochemistry (3)**

Prerequisite: Chemistry 361 or 366. A study of molecular geometry and relationships in space between atoms and groups in a molecule. Topics to be covered include optical isomerism, conformational analysis, asymmetric synthesis, and topology. Three hours lecture per week. [SM]

**464 Organic Photochemistry (3)**

Prerequisite: Chemistry 361 and 366. A study of the synthetic and theoretical aspects and applications of light induced reactions. Topics to be covered include primary photo-physical processes, reaction types, photosensitization. Three hours lecture per week. [SM]

**465 Chemistry of Natural Products (3)**

Prerequisite: Chemistry 361. The chemistry and physiological action of natural products; methods of isolation, determination of structures, synthesis, and biosynthesis. Three hours lecture per week. [SM]

**468 Problem Seminar in Organic Chemistry (1-3)**

Prerequisite: Consent of the organic chemistry staff. Problems from the current literature, presentations, and discussions by faculty and students. Up to three credits may be applicable in the M.S. or Ph.D. program. [SM]

**469 Special Topics in Organic Chemistry (3)**

Prerequisite: Consent of instructor. Advanced topics of special current interest. May be taken more than once for credit. [SM]

**489 Chemistry Colloquium (1)**

Presentation of papers by students, faculty and invited speakers. One hour per week.

**490 Graduate Research in Chemistry (1-10) [SM]**

## Economics

Prerequisites may be waived by consent of department.

**40 Introduction to the American Economy (3) (F, W)**

No credit for students majoring in economics or business. Introduction to economic analysis and problems through an examination of the development and operations of the American economy; study of its evolution, institutions and principal problems. [SS]

**50 Principles of Macroeconomics (3) (F, W)**

Introduction to the subject of economics with emphasis on the operation of the national economy, money and banking, and international economic relations. [SS]

**51 Principles of Microeconomics (3) (F, W)**

Introduction to the subject of economics with emphasis on the theory of the firm, price determination, and resource allocation. [SS]

**90 Freshman Seminar (3)**

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students. [SS]

**99 The City (3) (F, W)**

(Same as AOJ 99, History 99, Political Science 99, Psychology 99, and Sociology 99) An interdisciplinary course. Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification and psychological implications of urban living. Does not count toward a major in economics. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission. [SS]

**200 Macroeconomics for the School Curriculum (3)**

Prerequisite: Upperclass or graduate standing in School of Education. Analysis of forces affecting the national economy, with emphasis on income determination, employment, money and banking, and international trade and finance. Special reference to topics included in elementary and secondary school social science curricula. [SS]

**201 Microeconomics for the School Curriculum (3)**

Prerequisite: Upperclass or graduate standing in School of Education. Analysis of market forces, with emphasis on business firms, households, and productive-factor markets, price determination, and resource allocation. Special reference to topics included in elementary and secondary school social science curricula. [SS]

**216 Public Finance (3) (F)**

Prerequisite: Economics 40 or 50. The nature and

scope of public finance. Analysis of expenditure, revenue, and financial administration of the government, with emphasis on current problems. [SS]

**218 Social Choice in Political-Economic Systems (3)**

Prerequisite: Economics 51. A study of the mechanisms of social choice from the standpoint of individual and political party maximization of personal objectives. This area draws on work done by sociologists, political scientists, and economists. [SS]

**220 Money and Banking (3) (F, W)**

Prerequisite: Economics 40, 50, or 51. Factors influencing bank reserves and the money supply. Ability of the Federal Reserve System and the Treasury to control these factors. Introduction to monetary theory; integration of monetary phenomena with national income theory. Analysis of current policy issues. [SS]

**230 International Economic Analysis (3) (W)**

Prerequisite: Economics 40, 50, or 51. Elementary trade and payments analysis; balance of payments, international economic problems; concentration on fundamentals of analysis and problems. [SS]

**238 Comparative Economic Systems (3) (W)**

Prerequisite: Economics 40, 50, or 51. Comparative study of economic organization, growth and welfare in different national economies such as the United States, the Soviet Union, and France. [SS]

**239 The Soviet Economy (3)**

Prerequisite: Economics 40, 50, or 51. Intensive analysis of the Soviet economy as a case study in central planning. Growth and development of the Soviet economy in historical perspective, and prospects for future evolution and structural change. [SS]

**240 Economic Development (3)**

Prerequisite: Economics 40, 50, or 51. Survey of economic growth as applied to underdeveloped countries. Analysis of development policies with emphasis on specific case studies. [SS]

**241 American Economic Development (3)**

Prerequisite: Economics 40 or 50 or consent of instructor. Economic analysis and interpretation of the evolution of the principal developments, institutions, and structural characteristics of the economic system of the United States. [SS]

**242 European Economic Development (3)**

Prerequisite: Economics 40 or 50 or consent of instructor. Economic analysis and interpretation of the evolution of the principal developments, institutions and structural characteristics of the economic systems of Europe. [SS]

**243 Latin American Economic Development (3)**

Prerequisite: Economics 40 or 50 or consent of instructor. Economic analysis and interpretation of the evolution of the principal developments, institutions, and structural characteristics of the economic systems of Latin America. [SS]

**250 Intermediate Economic Theory: Macroeconomics (3) (F, W)**

Prerequisite: Economics 50 and 51. Study of national income, expenditure, and the forces determining the level of economic activity. Special emphasis on the theory of income determination and its application to public policy. [SS]

**251 Intermediate Economic Theory: Microeconomics (3) (W)**

Prerequisite: Economics 50 and 51. Analysis of prices in terms of equilibrium of the business firm and consumer demand in markets of varying degrees of competition. [SS]

**253 Managerial Economics (3)**

(Same as Business Administration 253) Prerequisite: Economics 51 and either Mathematics 80 or 101. Application of microeconomic theory to the decision-making process in the business firm. Discussion of cost behavior, price, and output determination under various competitive conditions, as well as factors affecting wages, interest, and profits. [SS]

**256 The Consumer and the Economy (3) (F, W)**

Prerequisite: Economics 51. This course will present a brief sketch of the historical development of consumption patterns in the United States and their interaction with methods of market competition. Theories of consumer behavior, including economic, behavioral and cultural approaches to consumption decisions, will be evaluated. The course will examine problems of consumer choice and the management of personal finances in today's economy. Topics to be considered include budgeting, the use of credit, improving buying practices, savings, insurance, and personal investment planning. The course will analyze ways in which the consumer function can be performed more efficiently, including the development of consumer education and the role of government in consumer protection. [SS]

**260 Labor Economics (3) (F)**

Prerequisite: Economics 40, 50, or 51. Forms of labor organization, state and federal labor legislation, and policies of labor unions. Emphasis on an application of economic theory to the relations of labor and business. [SS]

**270 Urban and Regional Economics (3) (F)**

Prerequisite: Economics 40, 50, or 51. A survey of factors affecting the location of economic activity, industrial diversity, determinants of urban growth, the

role of urban public economy, and the management of the urban environment. [SS]

**301 The Urban Environment and Planning (3)**

Prerequisite: Junior standing or 12 hours in social science. A survey of the development of urban America and the associated crises and of the origins and early practice of planning, role of the profession in modern society. Federal and state programs that affect urban development through the planning profession, and current changes in the practice of planning. [SS]

**302 Systems Analysis for Urban Planning Problems (3)**

Prerequisite: Junior standing and Economics 50 and 51 or consent of instructor. Applications of systems analysis to the planning program. Emphasis upon Planning Programming and Budgeting (PPB), costing, cost-benefit, cost effectiveness studies and information systems for urban planning and decision-making; covers review and evaluation techniques. [SS]

**304 Survey Research Practicum (3)**

(Same as Political Science 304 and Sociology 304) Prerequisite: Junior standing and consent of instructor. The execution of a sample survey, including establishing study objectives, sampling, questionnaire construction, interviewing, coding, data analysis, and presentation of results. [SS]

**317 Public Finance: State and Local (3)**

Prerequisite: Economics 50 and Economics 51. A study of expenditure, taxation and financial administration of state and local governments, with emphasis on problems of current interest. Special attention given to research methods, as well as financial relations between various levels of government. [SS]

**321 Money (3)**

Prerequisite: Economics 220. Demand for money; determination of interest rates, prices, and income; decision-making under conditions of uncertainty; term structure and interest rates. Other topics of mutual interest. [SS]

**331 International Economic Analysis (3)**

Prerequisite: Economics 50 and 51. Theory of international trade and payments, foreign exchange, and balance of payments analysis; integration of commercial policy, international monetary, and liquidity analysis. [SS]

**345 Population Economics (3)**

Prerequisite: Economics 40 or 50. A systematic study of the forces influencing the attributes, character, distribution, and growth of population; emphasis on economic considerations. [SS]



**350 Special Readings (1-10)**

Prerequisite: Consent of instructor. Unscheduled, independent directed readings on topics mutually acceptable to student and instructor. [SS]

**351 Mathematical Economics (3)**

Prerequisite: Economics 251 and Mathematics 101. Introduction to the development and use of mathematical models in economics. Decision and game theory. Selected topics in mathematical economics. [SS]

**355 Business and Government (3)**

(Same as Political Science 345) Prerequisite: Economics 51. Relations between business firms and government at all levels. Questions of regulation, public ownership, guidelines, and competition considered. [SS]

**356 Industrial Organization (3)**

Prerequisite: Economics 51. Analysis of the economic factors influencing industrial structure and the conduct and performance associated with various market structures. [SS]

**364 Manpower Policies (3)**

Prerequisite: Economics 51. Analysis of the allocation of human resources with emphasis on the economic theory of labor markets in both the short and the long run. Discussion of the operation of the labor market in specific occupations. [SS]

**365 Economic Statistics and Econometrics (3) (F, W)**

Prerequisite: Economics 50 and 51 and Mathematics 31. Mathematics 80 or 101 recommended. Application of statistical techniques to economic research problems. [SS]

**366 Econometrics (3)**

Prerequisites: Economics 365. Continuation of Economics 365. [SS]

**368 Analysis of Business Conditions (3)**

(Same as Business 368) Prerequisite: Economics 220. Discussion of factors affecting economic conditions, short-term fluctuations in business activity, and plans and policies for economic stabilization. Emphasis on problems and techniques of forecasting aggregate and industry demand.

**371 Urban Transportation (3)**

Prerequisite: Economics 51. Role of transportation in the past, present, and future development of urban areas will be treated with particular emphasis on urban passenger transportation and its present and future role and importance in urban areas. However, nonurban and nonpassenger transportation questions and problems will also be considered. Urban transportation planning procedures and techniques will be discussed and criticized. The policy aspects of the course will concentrate on

possible and appropriate investment and pricing policies for federal, state, and local governments in dealing with various urban transportation problems. [SS]

**380 History of Economic Thought (3)**

Prerequisites: Economics 50 and 51. The evolution of economic thought from the ancients through post-Keynesian theory. [SS]

**401 Macroeconomic Analysis (3) (F)**

Prerequisite: Economics 250 or equivalent. Aggregate economic theory, including analysis of the determinants of income, output, employment, and prices. Employment and price-level effects of consumer and investment demand, the money supply and interest rates, and government policies. [SS]

**402 Microeconomic Analysis (3) (W)**

Prerequisite: Economics 251 or equivalent. A rigorous, basic survey of microeconomic comparative statics. Detailed examination of demand and supply, product and factor markets. Partial equilibrium in competitive, imperfectly competitive, and monopolistic markets. [SS]

**420 Advanced Topics In Economic Structure, Policy and Planning (3)**

Prerequisite: Economics 401 and 365 or equivalent. An advanced research seminar on various topics in the application of economic analysis to public and private policy questions. Topics covered will include economic development and planning, comparative economic systems, program budgeting, and other planning and decision-making techniques. [SS]

**421 Public Sector Microeconomics (3) (F)**

Prerequisite: Economics 251. Survey of economics of bureaucracy, fiscal federalism, entrepreneurship in not-for-profit organizations, benefit cost analysis, tax welfare, property rights, and externalities. [SS]

**430 Advanced Topics in International Economics (3)**

Prerequisite: Economics 401. Recent literature in the pure theory of international trade, commercial policy, economic integration, trade and economic development, balance of payments adjustment, and international liquidity. Empirical testing and verification of salient theoretical concepts. Independent research on selected problems. [SS]

**470 Advanced Topics in Urban Economics (3)**

Prerequisite: Economics 401 or equivalent. Theoretical and empirical analysis of the economics of location and transportation. Economic base studies, regional input-output analysis, economics of agglomeration, manpower problems, and other relevant topics. Emphasis on urban community and region. [SS]

**490 Research I (1-10)**

Prerequisite: Candidacy for the M.A. degree in economics. Directed research in the student's major field of interest under the supervision of a member of the graduate staff. [SS]

**491 Research II (1-10)**

Continuation of Economics 490. [SS]

**Geography****101 Introduction to Geography (3) (F)**

Introductory survey of the physical, social, cultural, and economic attributes of place, and the interrelationships among these factors which define the similarities and differences among places. [SS]

**102 World Regions (3) (W)**

Prerequisite: None (Geography 101 is recommended). Survey of the major regions of the world. Designed to give the student an awareness of the character of each of these major regions through the interrelationships of the various attributes of place. [SS]

**210 Urban Geography (3) (F)**

Prerequisite: Sophomore standing. An indepth examination of urban growth, the location and basis of cities, and the internal spatial structure of cities provide the main topics of consideration. In addition, contemporary urban problems including zoning, urban renewal, blight, the journey to work and shop, pollution, etc., are discussed with a spatial emphasis. [SS]

**220 Social Geography (3) (W)**

Prerequisite: Sophomore standing. Topics presented in a spatial (geographic) framework include the diffusion of innovations, population (distribution, problems, and solutions), settlement patterns, migration, poverty, and urban-social problems (e.g., race and residential choice). [SS]

**English**

The university communicative skills requirement is a general prerequisite for all English courses numbered 130 or above. This, and other specific prerequisites, may be waived by consent of the department.

**Composition****09 English Composition (0) (F, W)**

A review of elementary principles of writing expository prose. Special attention is given to sentence clarity, organization, the clear and orderly development of ideas, and good diction. The course does not fulfill the university requirement in communicative skills. No credit toward any degree. The course meets three hours a week.

**10 Composition (3) (F, W)**

Theory and practice of writing expository prose. This course fulfills the general education requirement in basic communicative skills. Does not count toward the major in English.

**50 Short Story Writing (3) (F, W)**

Prerequisite: English 10 or equivalent. Theory and practice of writing the short story. [H]

**51 Poetry Writing (3)**

Theory and practice of writing poetry. [H]

**65 Honors Exposition (3)**

Prerequisite: Honors qualification on placement examination or essay proficiency test. May not be taken in addition to English 10. Practice in expository writing, with reading in literature and related fields on topics to be announced each semester. Does not count toward the major in English.

**112 Technical Writing (3)**

Prerequisite: English 10 or equivalent. Principles of technical writing with emphasis on clarity, conciseness, organization, style, and tone. Practice in writing technical reports, instructions, outlines, and summaries. Primarily designed for students in business and applied science.

**115 Commercial Writing (3) (F, W)**

Prerequisite: English 10 or equivalent. Emphasis upon news writing, newspaper feature writing, magazine article writing, and book reviewing.

**160 Advanced Expository Writing (3) (F, W)**

Prerequisite: English 10 or equivalent. Emphasis upon developing the critical and analytical capabilities of the writer. Course offers an introduction to research methods. For English majors this course is a prerequisite or corequisite to 300-level English courses.

**230 Writing Literary Criticism (3)**

Prerequisites: Two college courses in literature.

intensive training in the writing of literary criticism, with some attention to bibliography and to methods of research in literature. Recommended for all English majors. [H]

#### Language

##### 22 Traditional Grammar (1)

An introduction to the basic terms and concepts of traditional grammar, beginning with the parts of speech and moving to more complex structures such as participles, gerunds, and clauses. Includes introduction to conventions of formal usage.

##### 220 Development of the English Language (3) (F, W)

A historical survey of the English language with primary emphasis on the development of modern English from earlier periods of the language. [H]

##### 321 English Phonology and Dialectology (3) (F, W)

An introduction to the sound system of English and a study of English dialects, including methods of investigating dialectal differences, the concept of a standard dialect, geographical dialects in the United States, and Black English. [H]

##### 322 Modern English Grammar (3) (F, W)

A detailed study of Modern English sentence structure in terms of current theories of linguistic description, with special emphasis on transformational grammar. [H]

#### Literature

##### 12 Literary Types (3) (F, W)

The student is introduced to the various literary types, including poetry, drama, fiction, and the essay. [H]

##### 13 Topics in Literature (3) (F, W)

This course will introduce the student to selected literary topics and/or genres. Each semester the department will announce topics and course content. Topics such as alienation, justice, and the absurd, and genres such as science fiction and contemporary drama are typical possibilities. [H]

##### 101 Confusion and Chaos in the American Experience (3)

(Same as History 101 and Interdisciplinary 101) Selected topics in American history and literature from the colonial period to the present. [H] or [SS]

##### 102 Ethnic Cultures in America: Their History and Literature (3)

(Same as History 102 and Interdisciplinary 102) The course traces the history of the settlement of European, Jewish, German, Italian, Irish, and Negro groups in America. It will emphasize the problems of assimilation as they are reflected for each group in appropriate literary forms. [H] or [SS]

##### 120 Classical Literature in Translation (3) (F, W)

A study of classical literature from Homer through Quintilian, including such major figures as Sophocles, Plato, Aristotle, Cicero, and Vergil. [H]

##### 125 Literature of the Old Testament (3) (F, W)

Prerequisite: Sophomore standing or consent of instructor. A comprehensive understanding of the Old Testament, its literary background and significance for western civilization. [H]

##### 126 Continental Medieval Masterpieces in Translation (3)

A survey of masterworks of the early and later Middle Ages, to include the *Divine Comedy*, *Nibelungenlied*, *Song of Roland*, *El Mio Cid*, selections from Chretien de Troyes, Boccaccio's *Decameron*, and Machiavelli's *The Prince*. [H]

##### 127 Survey of European Literature from 1650 to the Second World War (3)

Works of continental writers such as Moliere, Goethe, Dostoevsky, Ibsen, and Kafka, read in translation. [H]

##### 128 The Contemporary World in Literature (3)

Selected American, British, and Continental literature since the Second World War. [H]

##### 129 Topics in Literature and Society (3)

Issues and ideas relating to literature and its cultural context. Topics to be announced each semester by the department. Since the topics of English 129 may change each semester, the course may be repeated for credit if the topic is substantially different. [H]

##### 131 English Literature I (3) (F, W)

The development of English literature from the Middle Ages through the eighteenth century. Reading and analysis of representative works of selected major writers. [H]

##### 132 English Literature II (3) (F, W)

The development of English literature during the nineteenth and twentieth centuries. Reading and analysis of representative works of selected major writers. [H]

##### 133 Introduction to Poetry (3) (F, W)

A close study of poems, with special emphasis on the varieties of poetic form, and the means of interpretation and evaluation. The works studied will be primarily English and American, and from at least three different centuries. [H]

##### 134 Introduction to Drama (3) (F, W)

A close study of major dramatic works in various modes, to introduce the student to the forms and techniques of dramatic literature. The works studied will be primarily English and American, and from at least three different centuries. [H]

**135 Introduction to Fiction (3) (F, W)**

A close study of major prose fiction, with particular attention to the varieties of fictional forms and techniques. The works studied will be primarily English and American, and from at least three different centuries. [H]

**171 American Literature I (3) (F, W)**

Representative selections from American authors from the middle of the seventeenth century to the middle of the nineteenth century. [H]

**172 American Literature II (3) (F, W)**

Representative selections from American authors from the middle of the nineteenth century to the present. [H]

**210 Themes and Forms in Literature (3)**

The study of particular literary ideas, modes, and genres, and their significance. Topics announced in advance by the department. Since the topics of English 210 may change each semester, the course may be repeated for credit if the topic is substantially different. [H]

**270 Afro-American Literature (3) (F, W)**

A survey of prose, poetry, and drama by Black Americans from the period of enslavement through the Negro Renaissance to the present. [H]

**280 Topics in Women and Literature (3) (F, W)**

An examination of the role of women in literature, either as figures in literary works or as writers. Specific topics to vary from semester to semester. Since the topics of English 280 may change each semester, the course may be repeated for credit if the topic is substantially different. [H]

**310 Continental Fiction (3)**

Prerequisite: Two college courses in literature. The development of the European novel in the nineteenth and twentieth centuries. Representative works of writers such as Balzac, Flaubert, Dostoevsky, Tolstoy, Kafka, and Proust, read in translation. [H]

**315 Literary Criticism (3)**

Historical survey of the principles of literary criticism from Plato to the present. [H]

**324 Chaucer (3) (F)**

The course concentrates on the poetry of Geoffrey Chaucer, including the *Canterbury Tales*, early poetic works, and the *Troilus and Cressida*. All readings are in the original Middle English. [H]

**325 Medieval English Literature (3) (W)**

A survey of Old and Middle English literature from *Beowulf* to Malory's *Morte D'Arthur*, exclusive of Chaucer. All works are read in modern English translations. [H]

**332 Tudor Poetry (3) (W)**

Spenser, Sidney, the sonneteers, and other non-dramatic poets of the sixteenth century. The development of poetic theory. [H]

**337 Shakespeare: Tragedies and Romances (3) (F, W)**

The development of Shakespeare's concept of tragedy and tragicomedy from *Titus Andronicus* to *The Tempest*. The plays will be related to the social and literary milieu of the period. [H]

**338 Shakespeare: Comedies and Histories (3) (F, W)**

Shakespeare's early work for the theatre with some attention to the sonnets and longer poems. A historical background for a study of all the plays, including discussions of Elizabethan society, the world of the stage, and Shakespeare's biography. [H]

**339 Tudor and Stuart Drama (3) (Alt. F)**

A survey of the dramatic writings of the period from the interludes of John Heywood to the closing of the theatres in 1642, with particular attention to the plays of Marlowe, Jonson, Webster, and Ford. Though Shakespeare will not be studied in this course, connections between his works and those of this contemporaries will be discussed. [H]

**341 English Renaissance Prose (3)**

The full variety of sixteenth- and seventeenth-century prose. Prose fiction, the essay, the diary, and philosophical and religious writing. Analysis of both thematic and stylistic developments. [H]

**342 Early Seventeenth-Century Poetry (3) (F)**

Non-dramatic poetry from the accession of James I to the Restoration, exclusive of Milton. [H]

**345 Milton (3) (W)**

All the minor poems and the three longer poems with some attention to the major prose. Milton and his relation to the politics, theology, and literature of the seventeenth century. [H]

**346 Restoration and Eighteenth-Century Drama (3) (W)**

The principal tragedies and comedies from Dryden to Sheridan, including the plays of Congreve, Farquhar, Rowe, Gay, Fielding, Goldsmith, among others. [H]

**352 Age of Dryden and Pope (3) (F)**

The beginnings of English neo-classic literature in the Restoration and its development through the first half of the eighteenth century, focusing on Dryden, Swift, and Pope. [H]

**353 Age of Johnson (3) (W)**

The breakdown of neo-classic spirit and the introduction of the "new" poetry and novel. Consideration of Fielding, Johnson, Thompson, Young, Goldsmith, Sheridan, and others. [H]

**364 The Eighteenth-Century English Novel (3) (F)**

The origins and early development of the English novel, from Defoe to Jane Austen. [H]

**365 The Nineteenth-Century English Novel (3) (W)**

The later development of the English novel, from Scott to Conrad. [H]

**368 Early Romantic Poetry and Prose (3) (F)**

The English Romantic Movement with special emphasis on the early writers—Blake, Wordsworth and Coleridge. Additional readings in selected prose writers and minor poets. [H]

**369 Later Romantic Poetry and Prose (3) (W)**

The English Romantic Movement with special emphasis on the later writers—Byron, Shelley, and Keats. Additional readings in selected prose writers and minor poets. [H]

**371 Prose and Poetry of the Victorian Period (3) (F, W)**

Critical readings of selections from Tennyson, Browning, Arnold, and others, in addition to selections from the major prose writers. [H]

**372 The Later Nineteenth Century (3) (F)**

Poetry, drama, and fiction of the period between 1870 and the first World War. Hardy, Hopkins, Conrad, Shaw, Wilde, Yeats, and others. [H]

**373 The American Renaissance (3) (F, W)**

American literature of the nineteenth century: Emerson, Thoreau, Hawthorne, Melville, Whitman, and others. [H]

**374 American Realism and Naturalism (3) (F, W)**

American literature of the late nineteenth and early twentieth centuries. James, Twain, Stephen Crane, Dreiser, and others. [H]

**375 American Fiction to World War I (3) (F)**

Development of the novel and short story in America. [H]

**376 Modern American Fiction (3) (F, W)**

The novel and short story in America since World War I. There may be some attention to British and Continental influences. [H]

**383 Modern British Fiction (3) (F)**

Critical reading and analysis of British fiction of the twentieth century. There may be some attention to American and Continental influences. [H]

**384 Modern Poetry (3) (F, W)**

Critical reading and analysis of poetry of the late nineteenth and early twentieth centuries. Yeats, Eliot, Frost, Williams, and others. [H]

**385 Modern Drama (3) (F, W)**

British, American, and European drama of the last

100 years: the well-made play, the problem play, verse drama, new definitions of tragedy, the angry theater, theater of the absurd. [H]

**386 Poetry Since World War II (3)**

Reading and analysis of contemporary poetry. [H]

**400 Introduction to Graduate Study in English (3)**

A course especially designed to prepare students to perform effectively in graduate classes in English. The course is concerned with basic bibliographical tools; terminology, both technical and historical; various approaches to the study of literature, such as intrinsic analysis of a literary work, the relationships of biography to literary study, and the relevance of other disciplines (psychology or philosophy, for example) to literature; and the writing of interpretive and research essays. Throughout the semester a balance between criticism and research is maintained.

**410 Modern Linguistics (3)**

Prerequisite: English 322 or the equivalent. A study of selected topics in the structure of the English language, combining readings in current linguistics publications with original research.

**415 Literary Criticism (3)**

An examination of selected theories of literature. [H]

**420 Old English (3)**

Elements of Old English grammar and reading exercises from Anglo-Saxon literature. [H]

**421 Studies in Middle English Literature (3)**

Special topics in English literature before 1500. [H]

**430 Renaissance Literature (3)**

Special topics in English literature from 1500 to 1660. [H]

**450 Eighteenth-Century Literature (3)**

Studies in Augustan poetry and prose, including drama and fiction, with emphasis on background and major figures. [H]

**460 Studies in Poetry (3)**

Study of a few selected British and American poets. [H]

**465 Studies in Fiction (3)**

Study of a few selected British and American novelists and short story writers. [H]

**467 Studies in Drama (3)**

Study of a few selected British and American dramatists. [H]

**470 Nineteenth-Century Literature (3)**

Special topics in English Romanticism, in Victorian life and thought, and in the development of the novel and of poetry between 1797 and 1914. [H]

**475 Studies in American Literature (3)**  
Selected American writers or topics of the nineteenth century. [H]

**480 Modern Literature (3)**  
Selected American and British writers of the twentieth century. [H]

**495 Seminar in Special Topics (3)**  
Special topics which are not covered in other graduate-level English courses. [H]

**497 Independent Reading (1-3)**  
Directed study in areas of English for which courses are not available. [H]

**499 Master's Essay (3)**  
Preparation of a concise essay equivalent in length to a substantial article in which the student demonstrates ability to do research, to offer perceptive criticism and evaluation, and to write clearly and effectively.

#### Special Offerings

**90 Freshman Seminar (3)**  
Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students. [H]

**250 Special Studies (1-3) (F, W)**  
Prerequisite: A course in area of proposed work and consent of instructor. Individual work, with conferences adjusted to needs of the student. May not be used to meet specific English department distribution and language requirements. May be repeated for a maximum total of four hours credit. [H]

**262 The Curriculum and Methods of Teaching English (3) (F, W)**  
(Same as Education 262) Prerequisite: Education 163 and a near-major in the subject matter. A study of the scope and sequence of the English courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of English. To be taken concurrently with student teaching.

**290 Seminar (3) (F, W)**  
Prerequisite: Consent of instructor. Intensive reading, critical discussion, and writing on topics to be announced each semester. Since the topics of English 290 may change each semester, the course may be repeated for credit if the topic is substantially different. Enrollment limited to twelve students. [H]

#### Speech Communication

**10 Basic Communication (3) (F, W)**  
Prerequisite: Interview with and consent of instructor before enrolling in course. Development of basic communication skills. Includes small group interaction, non-verbal communication, role playing, audience awareness, and theatre improvisation.

**101 Effective Speaking (3) (F, W)**  
Prerequisite: Sophomore standing. Emphasis on effective oral communication, formal and informal. Theories and techniques of argument and persuasion, organization, evidence, delivery.

**110 Introduction to Radio and Television Broadcasting (3) (F, W)**  
An introduction to broadcasting, including the areas of history, government regulations, station operation, and program development.

**120 Introduction to the Theatre (3) (F, W)**  
A study of theatre as an art form, emphasizing the audience's appreciation of the art of the playwright, actor, director, and designer. Study of major periods, genres, and plays from classical to modern times. [H]

**121 Theory and Practice in the Fundamentals of Acting (3) (F, W)**  
Oral and physical communication of a role through scene improvisations, pantomime. Emphasis on modern, realistic method, with some attention given to other styles, modes, and periods.

**123 Play Production (3) (W)**  
An introduction to the fundamental techniques of play production, including theatre organization, play selection, interpretation, casting, rehearsal procedure, directorial techniques, technical elements, etc. The course is terminal for those students who do not desire to pursue formal study in play production and is introductory for those students who desire to continue a more detailed study of the elements of play production.

**125 Stagecraft (4) (W)**  
A survey of the theory and practice of stage scenery methods and stage lighting principles. Practical experience in construction, rigging, and stage lighting techniques, as well as supervised work in all other phases of theatrical production will be emphasized. Two hours lecture and four hours laboratory.

**140 Introduction to Argumentation and Debate (3) (F)**  
Fundamentals of argumentation and debate. Application of logic and audience analysis. Preparing briefs. Some debating.

**199 Special Projects in Communication (1-4) (F, W)**  
(Variable credit, repeatable to a maximum of four hours) Prerequisite: Consent of instructor. Work on special projects in the student's field of interest, with conferences adjusted to needs of the student.

**201 Business and Professional Speaking (3)**  
Prerequisites: Speech 101. Application of varied oral communication skills with emphasis on actual formal and informal situations offering individual opportunities for advanced speaking, audience feedback, and constructive criticism.

**203 Introduction to Communication Theory and Research (3) (Alt. F/W)**  
A survey of communication theories and research techniques. Use of several research techniques and application of one or more in a communication research project.

**205 Communications in American Politics (3) (Alt. F)**  
Analysis of audience response and media preferences in political campaigns, campaign communications strategy, campaign speeches, candidate's uses of television and other mass media, and measuring effectiveness of campaign communications.

**211 The Broadcast Audience (3) (W)**  
A survey of techniques of audience analysis, including practical application to program development, with emphasis on the role of the audience in the communication process.

**212 Writing for Radio and Television (3) (Alt. W)**  
Prerequisite: Speech 110 or permission of instructor. Fundamentals of writing for the broadcast media. Includes format development and writing of news, public affairs, drama, and commercials.

**214 Creative Processes in Radio (3) (W)**  
Prerequisite: Speech 110 or consent of instructor. Review of theories and practices in creating radio programs. Laboratory experience will be included.

**221 Directing for the Theatre (3)**  
Prerequisite: Speech 121 or consent of department. A survey of the theories and practices of theatrical directing. The course will explore the director's role in the theatre from script analysis and production planning to the performance of laboratory scenes. [H]

**225 Designing for the Theatre (3)**  
An introduction to the theories and practices of scenic and costume design for the theatre. The course will survey the evolution of theatrical designs through different cultures, dramatic genres, and theatre architecture.

**230 Small Group Communication (3) (W)**  
Development of communication skills needed in

small group decision-making. Application of these skills to contemporary problems, with special emphasis on urban problems.

**240 Persuasive Communication (3) (F, Alt. W)**  
A study of persuasive communication including theories, techniques, forms, functions, applications, potential, and limitations for individual and organizations. Insights from both classical rhetoric and contemporary communications theory.

**250 Mass Media and Society (3) (F, W)**  
Nature and functions of mass communication with appraisal of the performance of the mass media in society.

**299 Internship in Communication (3) (F, W)**  
Prerequisite: Consent of instructor. Supervised practicum in one of the following areas of communication: rhetoric and public address, communication theory and research, theatre, or radio-TV-film.

## Fine Arts

### Art

Prerequisites may be waived by consent of instructor. For the nonmajor no more than 8 hours in studio art will be accepted toward graduation.

#### 1 Introduction to Art I (3) (F, W)

Illustrated discussion with examples from varied historic and contemporary art fields on the nature of art, functions and methods of creative expression. [H]

#### 2 Introduction to Art II (3)

Prerequisite: Art I. Study of the historical movements in art with emphasis on the major artists and monuments. [H]

#### 3 Art History Media Lab (1)

Consent of instructor. Technical demonstration of and research into the various materials and media used by the artist. (Formerly 201.)

#### 6 Introduction to the Afro-American Arts (3)

A survey of the cultural contributions of African music, dance, and sculpture to contemporary America. [H]

#### 11 Primitive Art (3)

A survey of the art of preliterate peoples of North America, Oceania, and Africa dating from prehistoric times through the present. This course will be approached from both aesthetic and sociological standpoints. Special attention will be paid to culture contact and the effects of acculturation. [H]

#### 12 American Indian Art (3) (V)

An investigation of the artifacts of the aboriginal peoples of North America. Culture areas to be covered are: Moundbuilder, Northeast, Plains, Navaho, Southwest, Northwest Coast, and Eskimo. The art will be studied with reference to style as a manifestation of underlying cultural dynamics. This course fulfills the study requirement for non-Euro-American. [H]

#### 40 Basic Drawing (3)

Prerequisite: Consent of department. An introduction for drawing through the study of the figure, object, and environment.

#### 41 Basic Drawing 11 (3)

Prerequisite: Art 40. The development of drawing skills and attitudes through continued observation and problems of invention. A further exploration of varied drawing materials and techniques including graphite, charcoal, conte crayon, and inks.

#### 42 Watercolor Painting (3)

Prerequisite: Art 41 and 50 or consent of instructor. Beginning problems in watercolor painting. Includes the study of traditional and contemporary approaches to color techniques and treatment of paper.

#### 43 Acrylic Painting (3)

Prerequisite: Art 41 and 50 or consent of instructor. An introduction to the use of waterbase acrylic paints. Color problems in opaque, transparent, and other technical and expressive methods on various surfaces.

#### 50 Basic Design (3)

Prerequisite: Consent of department. Studio problems in the creative use and integration of the elements of two dimensional design: line, form, space, texture, and color.

#### 90 Freshman Seminar (3)

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. [H]

#### 139 Art Activities for Elementary School (3) (F, W)

(Same as Education 139) A study of art principles and laboratory experiences with various media and materials. Stresses curriculum planning and development of the elementary school program in art.

#### 145 Survey of Oriental Art (3)

Prerequisite: Art 1. The study of the architecture, sculpture, and painting of India, China, Japan, and Southeast Asia, emphasizing art as a universal language that furthers our understanding of radically different cultures. [H]

#### 205 Classical Art and Archaeology of Greece and Rome (3)

Prerequisite: Art 1. A general survey of the development of material culture in Greece and Rome from the earliest times through the Hellenistic period and the Roman Empire. [H]

#### 206 Early Christian Art and Archaeology (3)

Prerequisite: Art 1. The origins and development of Christian imagery prior to the fourth century, the Constantinian epoch, and Byzantine developments to the death of Justinian. Attention will be paid to works of art and to the entire material culture of early Christianity. [H]

#### 210 Medieval Art (3)

Prerequisite: Art 1. The art and architecture of the Middle Ages from the Early Christian era through the late Gothic period. [H]

#### 213 History of Photography (3)

Prerequisite: Art 1 or consent of department. A study of photography: its historical development, an examination of it as an art medium, and its influence on the development of modern art. [H]

#### 221 Italian Renaissance Art (3)

Prerequisite: Art 1. A study of Italian Renaissance art from its early developments in the fourteenth and



fifteenth centuries to its climax and maturity in the sixteenth century. [H]

**222 Northern Renaissance Art (3)**

Prerequisite: Art 1. Fifteenth-and sixteenth-century art in Northern Europe with emphasis on the art of the Netherlands, France, and Germany. [H]

**226 Baroque Art in Italy and France (3)**

Prerequisite: Art 1. Art and architecture in Italy and France from c. 1600-1750. A study of the Baroque, Classicist, and Rococo styles with emphasis on the contributions of individual artists. [H]

**227 Baroque Art in Holland, Flanders and Spain (3)**

Prerequisite: Art 1. Seventeenth-century art in Holland, Flanders, and Spain with emphasis on such artists as Rembrandt, Rubens, VanDyck, and Velasquez. [H]

**230 American Art (3)**

Prerequisite: Art 1. A survey of the art of the United States, both as an extension of the European tradition and for its original contributions. [H]

**241 Nineteenth Century Art (3)**

Prerequisite: Art 1. The study of European art from Neoclassicism and Romanticism through Post-Impressionism. [H]

**242 Twentieth Century Art (3)**

Prerequisite: Art 1. A detailed study of trends in contemporary art from Fauvism and Cubism to Abstract Expressionism and more recent developments. [H]

**243 20th Century Architecture (3)**

Prerequisite: Art 1. A brief history and analysis of modern architecture. Investigations of technological process, urban planning, and the dominating social attitudes which govern architectural development. [H]

**245 The Art of the Print (3)**

Prerequisite: Art 1. Dealing with the history of print forms: woodcuts, etchings, engraving, lithographs, silk-screen, monotypes, and mixed media. Special emphasis will be given to the importance of prints to the art and artists of our time. [H]

**290 Special Study (1-10) (F, W)**

Prerequisite: Junior or senior standing and consent of department and instructor. Independent study through readings, reports, or field research. [H]

**293 Senior Seminar (3)**

Prerequisite: Senior standing in art history. Intensive reading, discussion, and writing on topics to be announced. [H]

**300 Contemporary Art Education: Craft and Theory (1-2)**

Prerequisite: Upper-division standing or permission

of the department. Intensive study for advanced students and art teachers, emphasizing specialized techniques and innovative concepts. Topics to be announced. May be repeated for credit.

**Music**

Prerequisites may be waived by consent of department. For the nonmajor no more than 8 hours in applied music courses will be accepted toward graduation.

**1 Introduction to Music (3) (F, W, S)**

A historically oriented study of art music, its styles and forms from the Baroque period to the present day. This course will not apply toward requirements for a music major. [H]

**2 Introduction to Symphonic Music (3)**

Orchestral music from the Baroque era to the present time; concerto grosso and suite; program music; the symphony. This course will not apply toward requirements for a music major. [H]

**3 Theory of Music I (3) (F)**

The basic materials and their use in analyzing and writing music. Systematic instruction in ear training and sight-singing. Primarily for music majors. [H]

**4 Theory of Music II (3) (W)**

Prerequisite: Music 3 or consent of department. Continuation of Music 3. [H]

**6 Introduction to the Afro-American Arts (3)**

(Same as Art 6) A survey of the cultural contributions of African music, dance, and sculpture to contemporary America. This course will not apply toward requirements for a music major. [H]

**7 Introduction to Jazz (3)**

A survey course which examines the musical, historical, and social aspects of the subject. This course will not count toward requirements for a music major. [H]

**9 Non-Western Music (3)**

The Music of Oceania; folk and classical music and dance of East Asia, Tibet, and Southeast Asia; the influence of Buddhism, Islam, and Western acculturation on the functions of music in these societies. [H]

**10 Non-Western Music (3)**

The music of the African continent, West Asia, and South Asia; a survey of the tribal folk and classical music and performing arts of these cultures. [H]

**14, 15 Piano Proficiency (2) (14F, 15W)**

Prerequisite: Permission of department. Group instruction for music majors who do not meet beginning keyboard requirements.

**17 Beginning Instrumental Techniques (1) (F, W)**

Prerequisite: Permission of department. Performance, teaching techniques and materials for the various media: a, bassoon; b, clarinet; c, flute; d, French horn; e, oboe; f, percussion; h, saxophone; i, string bass; j, trumpet; k, trombone; l, tuba; m, viola; n, violin; o, violoncello.

**40 University Chorus (1) (F, W)**

Prerequisite: Consent of instructor. Preparation and performance of choral literature.

**41 University Singers (1) (F, W)**

Prerequisite: Consent of instructor. The study and performance of music for vocal chamber ensemble.

**44, 45, 114, 115, 134, 135, 154, 155, 244, 245 Applied Music (2 or 4) (F, W)**

Registration by audition and permission of the department. Courses are offered in the following areas: bassoon, clarinet, classical guitar, euphonium, flute, French horn, oboe, harp, organ, percussion, piano, saxophone, trombone, trumpet, tuba, violin, viola, violoncello, string bass, and voice.

**50 University Orchestra (1) (F, W)**

Prerequisite: Consent of instructor. Study, preparation, and performance of orchestral repertory.

**52 University Band (1) (F, W)**

Prerequisite: Consent of instructor. Study, preparation, and performance of music for the wind ensemble and band.

**54 Chamber Ensemble (1) (F, W)**

Prerequisite: Permission of department. Study, preparation and performance of music for small ensembles: a, brass; b, jazz; c, percussion; d, strings; e, voice; f, woodwinds; g, accompanying.

**56 Opera Workshop (1) (F, W)**

Prerequisite: Consent of instructor. Opera from its inception to the present day through lectures, recordings, demonstrations, readings, and participation in performance and production.

**60 Collegium Musicum (1)**

Prerequisite: Consent of instructor. Performance of music for chamber ensemble with particular emphasis on the Renaissance and Baroque periods.

**90 Freshman Seminar (3)**

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students. [H]

**101 History of Western Music I (3) (F)**

Prerequisite: Music 3 or consent of department. A general survey of the history of western music. Includes the evolution and development of styles, forms, and their social setting. [H]

**102 History of Western Music II (3) (W)**

Prerequisite: Music 3 or consent of department. Continuation of Music 101. [H]

**111 Theory of Music (3) (F)**

Prerequisite: Music 4 or consent of department. Altered chords and modulation. Application of vocabulary and techniques to music of the eighteenth and nineteenth centuries. Composition in simple forms. [H]

**112 Theory of Music (3) (W)**

Prerequisite: Music 111 or consent of department. Continuation of Music 111. [H]

**116, 118, 119, 120 Intermediate Piano Proficiency (1) (F, W)**

Prerequisite: Music 15 or permission of department. Continuation of piano proficiency study.

**121 Theory of Music (2)**

Prerequisite: Music 112 or consent of department. Study of techniques and styles used in tonal and atonal music of the twentieth century. [H]

**122 Theory of Music (2)**

Prerequisite: Music 121 or consent of department. Continuation of Music 121. [H]

**123, 124, 125 Intermediate Vocal Techniques (1)**

Prerequisite: Permission of department. Instruction for non-voice majors in the choral option of the music education curriculum.

**125 Singer's Diction (1) (W)**

Prerequisite: Music 44 or Music 124. A study of English and Italian pronunciation.

**126 Singer's Diction (1) (F)**

Prerequisite: Music 125. A study of French and German pronunciation.

**136 Music Fundamentals for the Elementary School Teacher (2) (F, W, S)**

An introductory course in the rudiments of music for the elementary classroom teacher. Prerequisite for Music 137. This course will not apply toward requirements for a music major.

**137 Elementary School Music (2) (F, W, S)**

(Same as Education 137) Prerequisite: Music 136 or consent of department. The role of the classroom teacher in the development of the elementary school general music program; selection of music, demonstration and practice of methods, study of resources. This course will not apply toward requirements for a music major.

**141 Orchestration (2) (W)**

Prerequisite: Music 112 or concurrent. Study of the instruments of the orchestra; scoring for various instrumental ensembles and orchestra.

**151 Beginning Conducting (2) (W)**

Prerequisite: Music 111. Concurrent registration in Music 161 required. Techniques and problems in conducting.

**152 Intermediate Conducting (2) (F)**

Prerequisite: Music 151. Concurrent registration in Music 162. A continuation of Music 151 with the addition of score study and preparation.

**161 Junior-Senior High School Materials Laboratory (1) (W)**

Prerequisite: Music 111. Analysis and evaluation of selected instructional and concert materials for the junior and senior high school performance groups.

**162 Elementary School Materials - Conducting Laboratory (1) (F)**

Prerequisite: Music 112. Active conducting experience while analyzing and evaluating selected instructional and concert materials for elementary grades.

**192 Senior Readings (2) (F, W)**

Prerequisite: Consent of department. Required of all senior music majors. Directed readings and research in an area mutually acceptable to the student and instructor. [H]

**251a-b Advanced Conducting (2) (W)**

Prerequisite: Music 152 and 141. Concurrent registration in Music 261 required. Advanced study of conducting and rehearsal techniques, score reading, and interpretation.

**257 Curriculum and Methods of Teaching Elementary School Music (3) (F)**

Prerequisite: Music 112 and Education 101. For the music education major. A study of the elementary school music curriculum emphasizing the objectives, methods of teaching and staffing music classes, analysis of instructional materials and resources.

**261 Secondary School Materials - Conducting Laboratory (1) (W)**

Prerequisite: Music 112. Active conducting experience while analyzing and evaluating selected instructional and concert materials for the junior-senior high schools.

**267 Curriculum and Methods of Teaching Secondary School Music (3) (W)**

Prerequisite: Music 112 and Education 101. Concurrent registration in Music 261 required. For the music education major. A study of the secondary school music program: curricular objectives, materials, methodologies, teaching techniques, and administrative procedures for choral and instrumental performance organizations, non-performance classes, and related arts courses.

**290 Independent Study (1-3)**

Prerequisite: Junior or senior standing and consent of department and instructor. Independent study through reading, reports, or field research. [H]

**300 Advanced Techniques In Music Education (1-2)**

Prerequisite: A 200-level music education course or permission of the department. Intensive study for advanced music education students and music teachers, emphasizing specialized techniques and innovative concepts. Topics to be announced. May be repeated for credit.

**321 Music of the Middle Ages (3)**

Prerequisite: Music 101 or consent of department. A study of music and musical thought from the beginning of Christianity to 1450. Gregorian chant, polyphonic music, the Ars Antiqua, and the Ars Nova. [H]

**322 Music of the Renaissance (3)**

Prerequisite: Music 101 or consent of department. A study of the theoretical and practical impact of humanism on music, musicians, and musical thought from 1450 to 1600. Sacred and secular music; the rise of an instrumental idiom. [H]

**323 Music of the Baroque (3)**

Prerequisite: Music 101 or consent of department. A detailed study of musical style from 1600 to 1750. The rise of the new style, national styles in the seventeenth century, and the culmination of the baroque period. [H]

**324 Music of the Classic Period (3)**

Prerequisite: Music 102 or consent of department. A study of the growth of classical style; galant and expressive styles; Mozart, Haydn, and Beethoven. [H]

**325 Music of the Romantic Period (3)**

Prerequisite: Music 102 or consent of department. Composers, forms, and styles in nineteenth century music. The literary and social background of musical romanticism. [H]

**326 Music of the Twentieth Century (3)**

Prerequisite: Music 102 or consent of department. A detailed study of trends in modern music and of influential composers; impressionism, serial composition, electronic music, and other recent techniques. [H]

## History

### 3 American Civilization (3) (F, W)

Evolution of the cultural tradition of the Americas from the earliest times to the mid-nineteenth century, with emphasis on the relationship of ideas and institutions to the historical background. Course fulfills the state requirement. [SS]

### 4 American Civilization (3) (F, W)

Continuation of History 3 to the present. Course fulfills the state requirement. Either History 3 or 4 may be taken separately. [SS]

### 5 American Civilization (3) (F, W)

Dominant themes in American civilization from the sixteenth century to the present. Course fulfills the state requirement and may be taken as an alternative to History 3 and 4 by history majors. [SS]

### 31 Topics in European Civilization: The Emergence of Western Europe to 1715 (3) (F, W)

Lectures and discussions on the development of Western European society and tradition from approximately 1000 to 1715. [SS]

### 32 Topics in European Civilization: 1715 to the Present (3) (F, W)

Lectures and discussions on the development of Western European society and tradition from 1715 to the present. [SS]

### 45 Race (3)

(Same as Anthropology 45, Psychology 45, and Sociology 45) Prerequisite: 12 hours of college course credit. Origins and functions of conceptions of race. Biological and social definitions of race, the function of racial ideologies for societies; social, historical, and psychological basis of racism in the U.S.; the consequences of racism for the individual and societies. [SS]

### 61 Asian Civilization (3) (F)

The development of Asian civilization from earliest times to the Manchu conquest. [SS]

### 62 Asian Civilization (3) (W)

Either History 61 or 62 may be taken separately. Continuation of History 61 with emphasis on the Asian response to the Western incursion. [SS]

### 71 Latin American Civilization (3) (F)

A survey of selected topics important in the development of Latin America from pre-Columbian times to the twentieth century. [SS]

### 90 Freshman Seminar (3) (V)

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students. [SS]

### 99 The City (3) (V)

(Same as AOJ 99, Economics 99, Political Science 99, Psychology 99, and Sociology 99) An interdisciplinary course. Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission. [SS]

### 101 Confusion and Chaos in The American Experience (3) (F, W)

(Same as English 101) Selected topics in American history and literature from the colonial period to the present. [H] or [SS]

### 102 Ethnic Cultures in America: Their History and Literature (3)

(Same as English 102 and Interdisciplinary 102) The course traces the history of the settlement of European, Jewish, German, Italian, Irish, and Negro groups in America. It will emphasize the problems of assimilation as they are reflected for each group in appropriate literary forms. [H] or [SS]

### 110 Ancient Civilization (3)

Selected topics in the history of the Ancient Near East, Greece, and Rome. [SS]

### 120 Black History in the United States (3) (F, W)

The experience of black people in America from the period of the slave trade to the twentieth century, beginning with the areas and cultures of West Africa. The development and importance of slave trade, the institutionalization of slavery; black resistance to bondage; the role of blacks during the Civil War and Reconstruction period; the rise of segregation and disfranchisement of blacks; the testing of laws and the protest and revolutionary movements of today. [SS]

### 207 The History of Missouri (3)

Lecture and readings. Seventeenth century Spanish and French explorations and interaction with the Indians; settlement and organization of the Louisiana territory; lead mining and the fur trade; the Louisiana Purchase - the Missouri territory; the struggle for statehood and slavery; ante-bellum politics; banking and internal improvements; westward expansion; Civil War and Reconstruction; postwar agrarian politics; industrialization; Irish, German, and southern European immigration; the Progressive reforms - political and economic changes; twentieth century social changes and political developments. [SS]

### 265 Curriculum and Methods of Teaching History and Social Studies (3) (F, W)

(Same as Education 265) Prerequisite: Education 163

and a near-major in the subject matter. A study of the scope and sequence of the history and social studies courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of history and social studies. May not be counted toward a major in history. To be taken concurrently with student teaching.

**292 Historiography (3) (F, W)**

Prerequisite: Consent of department. The development of the historical profession, the nature of history, and the problems of historical writing.

**293 Senior Seminar (3) (F, W)**

Prerequisite: Consent of department. Required for all senior history majors who are candidates for graduation with honors. Recommended for all history majors planning to attend graduate school. Directed readings, research, and writing.

**301 United States History: Colonial America to 1763 (3) (F)**

Prerequisite: Junior standing or consent of instructor. English background of colonization; rise of distinctive New England and Southern societies; English colonial policy to the Peace of Paris. [SS]

**302 United States History: Revolution and the New Nation, 1763-1815 (3) (W)**

Prerequisite: Junior standing or consent of the instructor. The American Revolution and the creation of the new nation. The young republic and the development of the first American party system. [SS]

**303 United States History: Nationalism and Sectionalism, 1815-1860 (3) (W)**

Prerequisite: Junior standing or consent of the instructor. The Era of Good Feelings; the Age of Jackson; Manifest Destiny; the political and social developments of the ante-bellum period relating to the growth of sectionalism and the developing antislavery crusade. [SS]

**304 United States History: 1860-1900 (3) (W)**

Prerequisite: Junior standing or consent of the instructor. The Civil War; Reconstruction; industrial and urban expansion and their impact on American life. [SS]

**305 United States History: 1900-1940 (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The economic, political, and social developments and crises of the mature industrial United States. The growing importance of foreign relations. [SS]

**306 United States History: 1940 to the Present (3) (W)**

Prerequisite: Junior standing or consent of

instructor. The economic, political, and social developments and crises of post-industrial United States. The role of foreign affairs in American life. [SS]

**311a Constitutional History of the U.S. to 1865 (3)**

Prerequisite: Junior standing or consent of instructor. Origins and historical development of the principal institutions and ideas of the American constitutional system, the role of the Constitution in the establishment and early growth of the nation; constitutional issues of Hamiltonianism, Jeffersonianism, and Jacksonianism, including the role of the Supreme Court, the constitutional conflict over federalism and the nature of the Union; constitutional issues in the Civil War. [SS]

**311b Constitutional History of the U.S. Since 1865 (3)**

Prerequisite: Junior standing or consent of the instructor. The constitutional issues of the Reconstruction Era, how they were resolved, and the implications for the future, with special emphasis upon the Fourteenth Amendment and the evolution of the due process concept and their relations with individual liberties and civil rights; the impact of industrialization and urbanization upon American constitutional thought and development; the evolving impact of the Supreme Court; historical background to current constitutional issues. [SS]

**312 United States Diplomatic History (3)**

Prerequisite: Junior standing or consent of the instructor. An analysis of the development, formulation, and implementation of the United States foreign policy, including the role of the President, Congress, Department of State and other agencies. Reference will be made to the interdependence of domestic and foreign problems and policies. [SS]

**313 American Military History (3)**

Prerequisite: Junior standing or consent of instructor. A study of American military institutions from colonial times to the present. The impact of the military upon American social, political and economic life, as well as civilian attitudes toward the services. [SS]

**314 Growth of the American Economy (3)**

Prerequisite: Junior standing or consent of the instructor. Economic factors in the development of American institutions, from the colonial period to the present. Emphasis is on banking, transportation, agriculture, and international trade. [SS]

**315a American Intellectual History (3) (F)**

Prerequisite: Junior standing or consent of the instructor. Early American intellectual development. [SS]

**315b American Intellectual History (3) (W)**

Prerequisite: Junior standing or consent of the

instructor. Modern American intellectual development. [SS]

**316 History of Science in the United States (3)**

Prerequisite: Junior standing or consent of the instructor. Science as a method, as a body of knowledge, and as a social institution in the American context; relationships between scientific, social, economic, and political ideas and institutions. Nonscience majors welcome. [SS]

**320 History of Feminism in Western Society (3)**

Prerequisite: Junior standing or consent of the instructor. History of feminist movement and feminist thought on status of women, family, work, and sexuality in the United States, Great Britain, Western Europe, and Russia, as well as the relationship between feminist theory and the feminist movement. [SS]

**321 History of Women in the United States (3) (F)**

Prerequisite: Junior standing or consent of the instructor. Development of women's economic, political, and social role in the United States with special emphasis on the nineteenth and twentieth centuries. Women and work; women and the family; women and reform movements; women and education; feminist theorists and activists; images of women. [SS]

**322a Black History in the United States: Slavery and Emancipation (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The origin, institution, and operation of American slavery; the black response to slavery and the movement for emancipation. [SS]

**322b Black History in the United States: 1890 to Present (3) (W)**

Prerequisite: Junior standing or consent of the instructor. An intensive examination of immigration patterns, the role of the Supreme Court and protest organizations from the NAACP to the Black Panthers. [SS]

**323 Immigration in United States History (3) (F)**

Prerequisite: Junior standing or consent of the instructor. This course explores the background of immigration, general immigration trends and distribution patterns, ethnic communities in America, some comparisons of different immigrant groups, the immigrant's influence on the United States, and the assimilation and acculturation of immigrants into American life. [SS]

**324 American Frontier History (3)**

Prerequisite: Junior standing or consent of the instructor. The frontier considered as a factor in the development of American institutions. Frederick Jackson Turner and his critics. The westward course of settlement; the passing of the frontier. [SS]

**325 Rise of Industrial America (3)**

Prerequisite: Junior standing or consent of the instructor. History of American business, industry, and labor. [SS]

**326 American Urban History (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The rise of the city, and the transformation of ideas and institutions in the American city from colonial times to the present. [SS]

**327 History of the American South (3) (W)**

Prerequisite: Junior standing or consent of the instructor. Southern society and culture and the South's relationship with the nation. [SS]

**328 Asian-American Relations (3) (F)**

Prerequisite: Junior standing or consent of the instructor. A study of relations between American and Asian peoples from the early years of the China traders to the present. [SS]

**329 U.S. and Wars of National Liberation (3) (W)**

Prerequisite: Junior standing or consent of the instructor. A comparative study of the American response to selected revolutionary movements in Asia, Latin America, and Africa. [SS]

**331a The Ancient World: Israel (3)**

Prerequisite: Junior standing or consent of the instructor. Survey of Israel's history from the formation of the people to the final revolt under Simon Bar Kochba (132-135 C.E.). [SS]

**331b The Ancient World: The History of Greece to 336 B.C. (3)**

Prerequisite: Junior standing or consent of the instructor. Prehistory, Minoan and Mycenaean antecedents, the invasions and the establishment of a mainland culture, Hellenic civilization during the seventh through the fifth centuries, the period of transition, 404-336 B.C., with selected readings from the Greek historians and from other written sources. [SS]

**331c The Ancient World: The Hellenistic Period (3)**

Prerequisite: Junior standing or consent of the instructor. Survey of the political history of the major and minor dynasties subsequent to the death of Alexander, with more detailed consideration of literature and the visual arts, philosophy, and religion. [SS]

**331d The Ancient World: Rome (3)**

Prerequisite: Junior standing or consent of the instructor. Survey of Roman history from the beginnings to 565 A.D. [SS]

**332a Europe in the Early Middle Ages (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The end of the Roman Empire as a

universal entity; the successor states of the Mediterranean and Northern Europe; the emergence of a Western Christendom under the Franks; the development of feudal states; the Gregorian reforms; the Crusades; the revival of education and learning in the twelfth century. [SS]

**332b Europe in the High and Late Middle Ages (3) (W)**

Prerequisite: Junior standing or consent of the instructor. Medieval society at its political, economic, and intellectual zenith; the crisis of the later Middle Ages; the papal schism and the development of national particular churches within Catholicism; the rise of estate institutions. [SS]

**333 The Age of the Renaissance (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The Italian and Northern Renaissance as a distinct age; political, socio-economic, intellectual, religious, and artistic movements attending the decline of medieval society and the transition to the early modern period. [SS]

**334 The Age of Reformation (3) (W)**

Prerequisite: Junior standing or consent of the instructor. Religious, intellectual, political, and socio-economic developments of the sixteenth century. [SS]

**335 The Age of Absolutism, 1598-1715 (3) (F)**

Prerequisite: Junior standing or consent of the instructor. Political, religious, intellectual, and socio-economic developments during the decline of Spanish hegemony and the period of French domination. Special attention will be paid to different responses to the rise of absolute monarchy. [SS]

**336 Europe in the Eighteenth Century, 1715-1789 (3) (W)**

Prerequisite: Junior standing or consent of the instructor. The Old Regime and the Enlightenment. [SS]

**338 Europe in the Nineteenth Century, 1815-1914 (3)**

Prerequisite: Junior standing or consent of the instructor. The major political, social, economic, and diplomatic developments in Europe from the end of the Napoleonic Wars to the beginning of World War I. [SS]

**339 Europe in the Twentieth Century (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The impact of World Wars I and II; the search for equilibrium. [SS]

**341a European Intellectual History: From Locke to Hegel (3)**

Prerequisite: Junior standing or consent of the instructor. Main currents of European intellectual thought from the late seventeenth through the mid-nineteenth century. From Locke to Hegel. [SS]

**341b European Intellectual History: From Bentham to Freud (3)**

Prerequisite: Junior standing or consent of the instructor. Study of main currents of ideas in nineteenth century Europe in conjunction with social, economic, and political events of the time. Topics considered are Liberalism, Socialism, Irrationalism, and Psychoanalysis. Thinkers considered are Bentham, St. Simon, J.S. Mill, Coleridge, Marx, Ruskin, R. Wagner, Schopenhauer, Nietzsche, and Freud. [SS]

**342a Diplomatic History of Europe: Renaissance to 1815 (3)**

Prerequisite: Junior standing or consent of the instructor. A survey of European international relations beginning with the development of the techniques of modern diplomacy by the Italian city-states, with the emphasis on the way in which international relations changed with the break down of the unifying force of the Church and how diplomacy was used to counter the hegemony of the Spanish and French monarchies in the sixteenth and seventeenth centuries, respectively. [SS]

**342b Diplomatic History of Europe: Since 1815 (3)**

Prerequisite: Junior standing or consent of instructor. A survey of European international relations between the end of the Napoleonic Wars and the beginning of World War II, with emphasis on the rivalries of the great powers and the origins of their foreign policies. [SS]

**343a Economic History: Pre-Industrial Europe (3) (F)**

Prerequisite: Junior standing or consent of the instructor. A topical study of economic institutions and their development in Europe from Antiquity through the mid-eighteenth century, with emphasis on the agrarian economy; methods of artisan production; the role of currency; pre-industrial urbanization; the development of contracts, finance, and banking; the expansion of trade; and the emergence of international marketing areas. Considerable attention will be given to the social context of economic institutions and events. [SS]

**344a History of the Church: Early Christianity (3) (F)**

Prerequisite: Junior standing or consent of the instructor. Brief introduction to Jewish, Greek, and Roman antecedents. Christian beginnings, and the emergence of Christian traditions, to the Council of Nicea (325 A.D.) [SS]

**344b History of the Church: The Middle Ages (3) (W)**

Prerequisite: Junior standing or consent of the instructor. A topical study of the Christian Church in Europe as an autonomous and central institution from the sixth century through the Reformation Crisis. Special attention will be given to the relations between the Church and the secular world, and the contributions of medieval Christianity to the development of European institutions and ideas. [SS]

**345 History of Technology in the West (3) (V)**

Prerequisite: Junior standing or consent of the instructor. Technology as a characteristic of Western Culture; relationships between technology and economic and social development; emphasis on material artifacts as historical sources. [SS]

**351a Medieval England (3) (F)**

Prerequisite: Junior standing or consent of the instructor. A brief summary of the Anglo-Saxon heritage and the impact of the Norman Conquest, followed by an investigation of the institutional, social and legal evolution of the Realm of England. English development will be viewed in its European context. [SS]

**351b Yorkist and Tudor England (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The turmoil over the monarchy and the consolidation of the Tudor dynasty. A study of the English Reformation and the political and economic changes of the sixteenth century. [SS]

**351c Stuart England (3) (W)**

Prerequisite: Junior standing or consent of the instructor. A study of the English revolutions, religious controversy, and the rise of parliamentary power; the social and economic changes of the century; and the role played by England in the European struggles of the period. [SS]

**351d Hanoverian England (3) (W)**

Prerequisite: Junior standing or consent of the instructor. A study of English politics, economics, and culture during the Hanoverian period (1714-1837). [SS]

**351e Victorian England (3) (F)**

Prerequisite: Junior standing or consent of the instructor. A political, social, and economic study of Great Britain during the reign of Queen Victoria (1837-1901). [SS]

**351f Modern Britain (3)**

Prerequisite: Junior standing or consent of the instructor. An economic, political, and social study of Great Britain during the twentieth century. [SS]

**352b France: The Nineteenth Century, 1815-1914 (3)**

Prerequisite: Junior standing or consent of instructor. The history of France between the end of the Napoleonic wars and the beginnings of World War One, with emphasis on the political and social struggles to establish a stable form of government. [SS]

**352c France: The Twentieth Century, 1914-1969 (3)**

Prerequisite: Junior standing or consent of instructor. The history of France between the beginning of World War One and the fall of de Gaulle, with emphasis on the political and social

struggles to establish a stable form of government, and on the diplomatic and economic struggles to remain a great power in the contemporary world. [SS]

**353a Modern Germany: To 1917 (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The development of modern Germany. Attention will focus on nationalism, unification, industrialization, and the coming of the Great War. [SS]

**353b Modern Germany: Since 1917 (3) (W)**

Prerequisite: Junior standing or consent of the instructor. Weimar Republic, Nazi Reich, and the postwar division. Attention will focus on the failure of democracy, totalitarianism and its results. [SS]

**354 History of Spain (3)**

Prerequisite: Junior standing or consent of the instructor. A survey of Spanish history from the fifteenth century to the present, emphasizing its period of imperial greatness and examining the effects of empire on national development. [SS]

**355c History of the U.S.S. R. (3) (W)**

Prerequisite: Junior standing or consent of the instructor. Political, social, and cultural development in Russia from 1917 to the present. Major topics will include: the Revolution of 1917, stabilization of Communist power under Lenin, Stalin's "Great Change," and the organization and testing of the Communist state, post-Stalinist developments. [SS]

**355d Intellectual History of Russia, 1790-1920 (3)**

Prerequisite: Junior standing or consent of the instructor. Philosophical, religious, social, and political thought in nineteenth century Russia, development of radical intelligentsia up to and including Lenin. [SS]

**355a History of Russia to Peter I, 1725 (3) (F)**

Prerequisite: Junior standing or consent of the instructor. The social-economic, political, and cultural development of Russia from pre-Kievan times to 1725. Includes treatment of the rise, fall, and importance of the Kiev Russia state. The rise and development of Muscovite Russia and the reforms of Peter the Great. [SS]

**355b History of Russia, 1700-1918 (3) (W)**

Prerequisite: Junior standing or consent of the instructor. The emergence of Russia as a great power, the peak of its development under Catherine II and Alexander I (1796-1825), the reform and revolutionary movements of the 19th century, and the revolutions of 1905 and 1917. [SS]

**361 Modern Japan: 1850 to Present (3) (W)**

Prerequisite: Junior standing or consent of the instructor. The economic, social, and political development of modern Japan. [SS]



**362 Modern China: 1800 to Present (3) (F, W)**

Prerequisite: Junior standing or consent of the instructor. The economic, social, and political development of modern China. [SS]

**371a Latin America to the 1750's (3) (F)**

Prerequisite: Junior standing or consent of the instructor. Attention centers on pre-Columbian civilizations, the Spanish Conquest, and the development of social, economic, cultural, and administrative institutions of the Iberian Empires in America. [SS]

**371b Latin America from the 1750's to the 1850's (3) (W)**

Prerequisite: Junior standing or consent of the instructor. An examination of Bourbon efforts at reform, the Wars of Independence, and the problems faced by the new sovereign states. [SS]

**371c Latin America from the 1850's to the Present. (3)**

Prerequisite: Junior standing or consent of the instructor. An examination of the continuing struggle for independence with emphasis upon developments in Mexico, Argentina, and Brazil. [SS]

**390 Special Readings (1-10) (F, W)**

Prerequisite: Consent of the instructor. Independent study through readings, reports, and conferences. [SS]

**399 Quantitative Methods in Historical Research (3) (F)**

Prerequisite: Junior standing or consent of the instructor. This course deals primarily with how one can use quantitative analysis to improve the validity of generalizations and inferences one may draw from various types of historical data. Explores a number of basic methods for analyzing social and political data, as well as the rationale for using such quantitative methods in historical research. [SS]

**419 Readings in East Asian History (3)**

Directed readings on selected topics and areas in East Asian history. Course may be repeated on different topics or areas. [SS]

**430 Readings in European History (3)**

Directed readings on selected topics and areas in European history. Course may be repeated on different topics or areas. [SS]

**450 Readings in American History (3)**

Directed readings on selected topics and areas in American history. Course may be repeated on different topics or areas. [SS]

**460 Readings in Latin American History (3)**

Directed readings on selected topics and areas in Latin American history. Course may be repeated on different topics or areas. [SS]

**490 Seminar in European History (3)**

Research and writing on selected topics in European history. [SS]

**491 Seminar in American History (3)**

Research and writing on selected topics in American history. [SS]

**492 Seminar in East Asian History (3)**

Research and writing on selected topics in East Asian history. [SS]

## Interdisciplinary

Prerequisites may be waived by consent of instructor.

### 45 Race (3)

(See Anthropology 45, History 45, Psychology 45, or Sociology 45) Origins and functions of conceptions of race, biological, and social definitions of race; the function of racial ideologies for societies; social, historical, and psychological bases for racism in the U.S.; the consequences of racism for the individual and societies. [SS]

### 50 Women (3) (F, W)

An interdisciplinary study of the role of women in the family and in society. Areas of coverage will include the biological, psychological, anthropological, economic, social, political-legal, and historical. [SS]

### 65 The University (3) (F)

An interdisciplinary course on the principles, development, and organizational structure of the university. Special emphasis will be placed on the role of the university in modern society and upon forces affecting the direction of the university and its potential for change. Methods include outside speakers, discussion groups, and laboratory research on UMSL. [SS]

### 70 Issues in Contemporary Religious Thought (3) (W)

An examination of selected current social, moral, and ethical problems as viewed by representatives of major schools of religious thought. [H]

### 75 Crime and Punishment (3)

See Administration of Justice 75, Psychology 75, Sociology 75, Anthropology 75. An introduction to sociological and psychological explanations of crime and punishment. An examination of private and governmental responses to the threats of crime and delinquent behavior. [SS]

### 77 Third World Development (3)

See Political Science 77, Sociology 77, Anthropology 77. An interdisciplinary course concerned with the process of development and underdevelopment in the modern world. Focus will be upon the internal structures of societies, the effects of foreign policies, and cooperative and coercive international relations as they have affected developing nations. The loss of many valuable aspects of life that has accompanied previous patterns of development will be examined in light of the possibility of alternative strategies. [SS]

### 80 Global Problems and Issues (3)

An interdisciplinary course which utilizes the perspectives of both the physical and social sciences to survey a wide variety of problems that confront mankind such as the control of violence, economic development and stability, and the management of energy and resources. These problems are discussed in terms of both their global and local dimensions,

with special reference to how the world impacts on St. Louis and St. Louis impacts on the world. For freshmen and sophomores. [SS] or [SM]

### 99 The City (3) (F, W)

(See Administration of Justice 99, Economics 99, History 99, Political Science 99, Psychology 99, or Sociology 99) Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission. [SS]

### 101 Confusion to Chaos in the American Experience (3) (W)

(Same as History 101 and English 101) Selected topics in American History and literature from the colonial period to the present. [SS] or [H]

### 102 Ethnic Cultures in America: Their History and Literature (3) (F)

(See History 102 and English 102) The course traces the history of the settlement of European Jewish, German, Italian, Irish, and Negro groups in America. It will emphasize the problems of assimilation as they are reflected for each group in appropriate literary forms. [SS] or [H]

## Mathematical Sciences

All introductory courses in mathematics, other than Mathematics 02 and 03, require as a prerequisite a satisfactory score on the mathematics portion of the Missouri College Placement Test. The dates on which this test is administered are given in the *Schedule of Courses*.

A minimum grade of C shall be required to meet the prerequisite requirement for any course except with permission of the department.

Prerequisites may be waived by consent of department.

### Mathematics

#### 02 Fundamentals of Algebra (4) (F, W)

Prerequisite: One year of high school algebra. A review of ninth grade algebra and an introduction to other topics of elementary algebra, including exponents and radicals, linear and quadratic functions and their graphs, systems of equations. No credit toward any degree.

#### 03 Trigonometry (2) (F, W)

Prerequisite: One and one-half units of high school algebra or Mathematics 02. This is a remedial course in trigonometry designed for the student who intends to study the calculus and has not had high school trigonometry. It is recommended that this course be taken concurrently with Mathematics 30. No credit toward any degree.

#### 15 Mathematics: Ideas and Structures (3)

Prerequisite: Mathematics 02; or a satisfactory score on the mathematics placement examination. An introduction to the spirit of mathematics and to modern mathematical thought. Course is designed for the student who does not intend to major in mathematics or science. [SM]

#### 30 College Algebra (4) (F, W)

Prerequisite: Mathematics 02; or three units of high school mathematics and a satisfactory score on the mathematics placement examination. Topics in algebra and probability, polynomial functions, the binomial theorem, logarithms, exponentials, solutions to systems of equations. Credit not granted for both Mathematics 30 and 40. Mathematics 40 is recommended for mathematics and science majors. [SM]

#### 40 Pre-Calculus Mathematics (5) (F, W)

Prerequisite: Mathematics 02; or three units of high school mathematics including one and one-half units of algebra and a satisfactory score on mathematics placement examination. Topics from algebra and trigonometry for the student who plans to take further work in mathematics. Polynomial functions, the binomial theorem, mathematical induction, the logarithmic, exponential, trigonometric and inverse trigonometric functions. [SM]

#### 50 Structure of Mathematical Systems I (3) (F, W)

Prerequisite: 45 hours of college credit and either Mathematics 02 or a satisfactory score on the mathematics placement examination. A study of mathematical systems, elementary logic, natural numbers, sets, construction of the integers. Recommended for elementary education students. [SM]

#### 80 Analytic Geometry and Calculus I (5) (F, W)

Prerequisite: Mathematics 40; or four units of high school mathematics covering the equivalent material and a satisfactory score on the algebra-trigonometry placement examination. Introduction to analytic geometry, differential calculus, and integral calculus. Mathematics 80, 175, and 201 form the calculus sequence. [SM]

#### 101 Survey Calculus (4) (F, W)

Prerequisite: Mathematics 40 or 30 or a satisfactory score on the mathematics placement examination. Introduction to plane analytic geometry and study of the basic techniques of the differential and integral calculus with application to various areas. No credit for mathematics majors. Credit not granted for both Mathematics 80 and 101. [SM]

#### 102 Finite Mathematics I (4) (F, W)

Prerequisite: Same as for Mathematics 101. Introductory logic and set theory, partitions and counting problems, elementary probability theory, stochastic processes, Markov chains, vectors and matrices, linear programming, and game theory. [SM]

#### 151 Structure of Mathematical Systems II (3) (F, W)

Prerequisite: Mathematics 50. A continuation of Mathematics 50 to include a study of the rational and real number systems. An intuitive study of elementary geometry. Introduction to the deductive theory of geometry. Recommended for elementary education students. [SM]

#### 175 Analytic Geometry and Calculus II (5) (F, W)

Prerequisite: Mathematics 80. Selected topics from plane analytic geometry and calculus. [SM]

#### 201 Analytic Geometry and Calculus III (5) (F, W)

Prerequisite: Mathematics 175. Solid analytic geometry and selected topics in calculus. [SM]

#### 202 Linear Algebra and Differential Equations (3) (F, W)

Prerequisite: Mathematics 201. Linear algebra of finite dimensional vector spaces, linear maps, matrices, determinants, linear differential equations of first order, linear differential equations with constant coefficients, variation of parameters. Wronskian. [SM]

#### 203 Finite Mathematics II (3)

Prerequisite: Mathematics 102. A continuation of

Mathematics 102. Linear programming and game theory, application of combinatorial mathematics. A student cannot receive credit for both Mathematics 203 and Business Administration 375. [SM]

**245 Matrix Algebra with Applications (3)**

Prerequisite: Mathematics 30 or 40. An introduction to matrices and linear algebra with applications. Topics will include operations with matrices, inversion of matrices, solutions of systems of equations, determinants, and eigenvalues. [SM]

**250 Introduction to Modern Mathematics (3) (F, W)**

Prerequisite: Mathematics 201. Set algebra, equivalence relations, partitions, functions, development of algebraic and topological properties of the real numbers. [SM]

**301 Differential Equations (3)**

Prerequisite: Mathematics 250. A theoretical approach to ordinary differential equations intended for the student majoring in mathematics. Existence of solutions of linear differential equations and systems of differential equations. [SM]

**303 Applied Mathematics II (3) (F)**

Prerequisite: Mathematics 301 or 302. Topics chosen from Fourier series, special functions, partial differential equations, boundary value problems. [SM]

**304 Applied Mathematics III (3)**

Prerequisite: Mathematics 250 or 302. Matrices and characteristic values; vector analysis; analytic functions of a complex variable, Taylor and Laurent series, residues, conformal mapping. [SM]

**306 Applied Differential Equations (3)**

Prerequisite: Mathematics 302. Series solutions to ordinary differential equations, numerical methods, Laplace transforms, differential systems, stability, applications to physics, engineering, and biology. [SM]

**310 Advanced Calculus (3) (F)**

Prerequisite: Mathematics 250 or consent of department. Limits, continuity, and differentiability of functions of one and several variables, sequences and series, the Riemann-Stieltjes integral. [SM]

**311 Advanced Calculus II (3) (W)**

Prerequisite: Mathematics 310. Continuation of Mathematics 310. [SM]

**316 Functions of a Complex Variable (3) (W)**

Prerequisite: Mathematics 250 or 302. Complex numbers and their geometrical representation, point sets, analytic functions of a complex variable, complex integration, Taylor and Laurent series, residue theorem, conformal mapping. [SM]

**323 Numerical Analysis I (3) (W)**

Prerequisite: Mathematics 201 and knowledge of

Fortran. Solutions of equations, interpolation and approximation, numerical differentiation and integration, and numerical solution of initial value problems in ordinary differential equations. Selected algorithms will be programmed for solution on computers. [SM]

**324 Numerical Analysis II (3)**

Prerequisite: Mathematics 323. The solution of linear systems by direct and iterative methods, matrix inversion, the evaluation of determinants, and the calculation of eigenvalues and eigenvectors of matrices. Application to boundary value problems in ordinary differential equations. Introduction to the solution of partial differential equations. Selected algorithms will be programmed for solution on computers. [SM]

**327 The Calculus of Variations (3)**

Prerequisite: Mathematics 311. Methods for optimizing functionals and their applications. The Euler-Lagrange condition. Hamilton's principle, two dimensional variational problems, and isoperimetric problems. Approximate methods for the solution of variational problems. [SM]

**335 Theory of Numbers (3) (W)**

Prerequisite: Mathematics 250 or consent of department. Properties of the integers, multiplicative functions, congruences, primitive roots, quadratic residues. [SM]

**340 Introduction to Abstract Algebra I (3) (F)**

Prerequisite: Mathematics 250 or consent of the department. Introduction to groups, rings, fields, and vector spaces with emphasis on fields. [SM]

**341 Introduction to Abstract Algebra II (3) (W)**

Prerequisite: Mathematics 340 or consent of the department. Continuation of Mathematics 340 with emphasis on linear algebra. [SM]

**345 Linear Algebra (3)**

Prerequisite: Mathematics 250 and 302. Topics selected from vector spaces, bases, linear transformations, matrices, canonical forms, eigenvalues, hermitian and unitary matrices, inner product spaces, quadratic forms. [SM]

**350 Special Reading (1-10) (F, W)**

Prerequisite: Mathematics 250 and consent of instructor. [SM]

**358 Mathematical Logic (3)**

Prerequisite: Mathematics 250, Philosophy 360, or consent of the department. A study of the logic of mathematics by the axiomatic method, with a development of the propositional calculus and restricted predicate calculus emphasizing its application to the foundations of mathematics. [SM]

**362 Projective Geometry (3) (Alt. W)**

Prerequisite: Mathematics 250 or consent of the department. Analytic approach to the study of projective spaces. Theorems of Desargues, Pascal, and Brianchon. Project properties of conics. [SM]

**364 Introduction to Differential Geometry (3)**

Prerequisite: Mathematics 250. Geometry of curves and surfaces in Euclidean 3-space. Calculus on a surface. Intrinsic geometry of surfaces. [SM]

**366 Foundations of Geometry (3) (F)**

Prerequisite: Mathematics 250 or consent of department. A development of portions of Euclidean geometry from a selected set of axioms, including a discussion of consistency, independence, categoricity, and completeness of the axioms. [SM]

**367 Introduction to Non-Euclidean Geometry (3) (Alt. W)**

Prerequisite: Mathematics 250 or consent of the department. A summary of the history of the non-Euclidean geometries and a study of hyperbolic plane geometry. [SM]

**380 Introduction to Topology (3)**

Prerequisite: Mathematics 250 or consent of the department. A study of topological spaces, including the concepts of limit, continuity, connectedness, compactness, etc. Special emphasis placed on, and examples taken from, the space of real numbers. [SM]

**402 Applied Mathematics I (3)**

Fourier series and integrals, Laplace transforms boundary value problems, matrices, integral equations, Sturm-Liouville systems. [SM]

**403 Applied Mathematics II (3)**

A continuation of Mathematics 402. [SM]

**410 Theory of Functions of a Real Variable I (3)**

Prerequisite: Mathematics 310. Mathematics 311 is strongly recommended. The real number system, properties of functions of one or more real variables, mapping, theorems. Introduction to measure and integration theory. [SM]

**411 Theory of Functions of a Real Variable II (3)**

A continuation of Mathematics 410. [SM]

**416 Functions of a Complex Variable I (3)**

Prerequisite: Mathematics 310. Complex numbers, topology of the complex plane, analytic functions, conformal mappings, Taylor series, Laurent series; complex integration, residues, analytic continuation, representation of analytic functions, elliptic functions, normal families, Riemann theorem, majorization. [SM]

**417 Functions of a Complex Variable II (3)**

Prerequisite: Mathematics 416. A continuation of

Mathematics 416; meromorphic functions, Dirichlet series, Riemann surfaces. [SM]

**418 Topics in Analysis (3)**

Prerequisite: Consent of instructor. Topics selected from the areas of Fourier Analysis, harmonic analysis, Hilbert spaces, Banach algebras, special functions, generalized functions, partial differential equations. May be taken more than once for credit with consent of the department. [SM]

**420 Probability Theory I (3)**

Prerequisite: Mathematics 410 (may be taken concurrently). Combinatorial analysis, random walks, stochastic independence, random variables, laws of large numbers, generating functions, branching processes. [SM]

**421 Probability Theory II (3)**

Prerequisite: Mathematics 420. A continuation of Mathematics 420; characteristic functions, limit theorems, Brownian motion and diffusion processes. [SM]

**430 Partial Differential Equations I (3)**

Prerequisite: Mathematics 310. Classification of partial differential equations, Cauchy, Dirichlet, and Neumann problems, the fundamental solution, existence theorems of potential theory, eigenvalue problems, and Tricomi's problem. [SM]

**431 Partial Differential Equations II (3)**

Prerequisite: Mathematics 430. A continuation of Mathematics 430; differential operators, partial differential equations on manifolds. [SM]

**442 Algebra I (3)**

Prerequisite: Mathematics 340. Basic fundamentals of the theory of groups, rings, and fields. [SM]

**443 Algebra II (3)**

A continuation of Mathematics 442. [SM]

**448 Topics in Algebra (3)**

Prerequisites: Mathematics 340 and 341 and consent of department. Topics selected from the theory of groups, rings, fields, algebras, and other algebraic systems. May be taken more than once for credit with consent of department. [SM]

**470 Functional Analysis I (3)**

Prerequisites: Mathematics 410 and 411. Algebraic and topological tools applied to problems in analysis. The topics chosen will usually include topological vector spaces, metric spaces, Banach spaces, Hilbert spaces, and Banach algebras. [SM]

**471 Functional Analysis II (3)**

Prerequisite: Mathematics 470. A continuation of Mathematics 470; spectral theory, distributions and test functions, unbounded operators. [SM]

**480 Topology I (3)**

Prerequisite: Mathematics 310. Topological spaces, compactness, connectedness, mapping theorems, product spaces, function spaces, metric spaces. [SM]

**481 Topology II (3)**

Prerequisite: Mathematics 480. A continuation of Mathematics 480; introduction to algebraic topology, fundamental group, homology. [SM]

**Computer Science****122 Computers and Programming (3) (F, W)**

Prerequisite: Mathematics 30 or 40 or equivalent. Introduction to machine hardware and software, fundamentals of Fortran, algorithms, matrices and matrix arithmetic, matrix algorithms. Does not count toward a major in mathematics. Credit not granted for both Business Administration 104 and Computer Science 122. [SM]

**222 Algorithms and Languages (3)**

Prerequisite: Computer Science 122 or consent of instructor. Algorithms for text editing, string manipulation, sorting, searching, information storage and retrieval, game playing, problem solving, etc. Programming in assembly language and contemporary higher level languages such as PL/1, APL, and SNOBOL. [SM]

**312 Analysis of Algorithms (3)**

Prerequisite: Mathematics 201. Efficiency of the basic algorithms of computer science. Sorting, searching, multiplication of matrices and integers. Emphasis will be placed on comparison of alternate methods. [SM]

**322 Data Structures (3)**

Prerequisite: Computer Science 222 or consent of instructor. Stacks, linked lists, trees, and multilinked structures. Applications in algorithms. [SM]

**325 Theory of Computation (3)**

Prerequisite: Upper-division standing or consent of the instructor. Finite automata, Turing machines, recursive function theory, Church's thesis, decision problems. [SM]

**332 Artificial Intelligence (3)**

Prerequisite: Mathematics 250, 322. Definition of heuristic versus algorithmic methods. Use of heuristic methods in such areas as game playing, theorem proving, formula manipulation, symbolic differentiation pattern recognition, and question answering. Class and individual projects to illustrate basic concepts. [SM]

**370 Techniques of Program Design (3)**

Structured programming will be introduced. This technique aids the programmer in the transformation and analysis of a given problem into one suitable for

coding. Team programming for larger problems will be considered. PLI will be introduced and used exclusively in the courses. [SM]

**Probability and Statistics****31 Elementary Statistical Methods (3)**

Prerequisite: Mathematics 30 or 40. An introduction to the basic tools and elementary methods of statistics, such as testing of hypotheses, analysis of variance, method of least squares, and time series. Does not satisfy the School of Business Administration requirement ordinarily met by Business Administration 131. A student cannot receive credit for both Mathematics 31 and Business Administration 131. [SM]

**232 Applied Statistics (3)**

Topics to be chosen from: fitting distributions to data, goodness of fit, parametric and non-parametric correlations and partial correlation, nonparametric statistics, sampling, design of experiments, categorical data, and regression. Emphasis on practical applications. [SM]

**320 Mathematical Statistics I (3) (F)**

Prerequisite: Mathematics 201. Introduction to theory of probability and statistics using concepts and methods of the calculus. [SM]

**321 Mathematical Statistics II (3)**

Prerequisite: Mathematics 320. Continuation of Mathematics 320. Continuous sample spaces, stochastic processes, statistical inference, and statistical models. [SM]

**326 Introduction to Stochastic Processes (3)**

Prerequisite: Mathematics 320. Markov chains, martingales, stationary distributions of a Markov chain, recurrent states, branching, birth and death, and queuing chains, jump processes, second order processes, continuity and differentiation of second order processes, white noise and stochastic differential equations. [SM]

**330 Multivariate Analysis (3)**

Prerequisite: Mathematics 320 and 245 or consent of instructor. Multivariate normal distribution and related distributions such as the Wishart distribution. Statistical inference for the multivariate normal distribution. Multiple regression, canonical correlations, multivariate analysis of variance, classification problems, discriminant analysis. [SM]

**331 Analysis of Variance and Design of Experiments (3)**

Prerequisite: A year of calculus, some matrix theory, and an intermediate course in statistics. Theory of general linear hypotheses, important special cases of analysis of variance, theory of least square estimation, interval estimation, one-way, two-way,

and higher-way layouts, completely randomized design, randomized complete blocks, latin square design, factorial, incomplete block and fractional replications, lattice design, optimum design. [SM]

**333 Nonparametric Methods in Statistics (3)**

Prerequisite: Mathematics 320 or consent of instructor. Emphasis on statistical tests which are distribution free; one sample and two sample location and detection of shifts, point estimators, confidence intervals. Relative dispersion, K-sample tests, detection of independence, regression. [SM]

## Modern Foreign Languages

### Chinese

Courses in Chinese are available at Washington University for UMSL students. Consult the department for details and obtain the necessary forms in the registrar's office.

**1 Elementary Chinese (4)**

**2 Elementary Chinese (4)**

### French

Prerequisites may be waived by consent of department.

**1 Elementary French (5) (F, W)**

Emphasis will be placed upon the speaking and understanding of French and upon the acquisition of the fundamentals of grammar and syntax. One hour laboratory required.

**2 Elementary French (5) (F, W)**

Prerequisite: French 1 or equivalent. Emphasis will be placed upon the speaking and understanding of French and upon the acquisition of the fundamentals of grammar and syntax. One hour laboratory required.

**101 Intermediate French (3) (F, W)**

Prerequisite: French 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections.

**103 Intermediate French (3) (F, W)**

Prerequisite: French 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections. Designed primarily for those students intending to continue in French. (Credit is not granted for both French 101 and 103.)

**110 Modern French Literature in Translation (3)**

Prerequisite: Sophomore standing. Reading and discussion of selected works in French literature from the modern period. May be taken to fulfill the humanities requirement. May not count toward the French major. [H]

**150 European Literature in Translation: Special Topics (3)**

Major figures, works, or movements in the literature of Europe and their relevance to our own age. Topic is announced in advance by the department. Does not count toward major in French. May be taken to fulfill the humanities requirement. [H]

**160 Phonetics (3)**

Prerequisite: French 101 or 103 or consent of instructor. An analytic and practical study of contemporary French sound structure.

**171 French Conversation and Pronunciation (3) (F)**

Prerequisite: French 101 or 103 or equivalent.  
Emphasis will be placed upon the development of oral skills in French and upon the problems of French pronunciation.

**172 French Composition (3) (W)**

Prerequisite: French 101 or 103 or equivalent.  
Designed to develop writing skills in French.

**180 Readings in French (3) (F)**

Prerequisite: French 160 or 171, or 172 or equivalent.  
Development of language skills through reading and discussion of literary texts. [H]

**190 Special Readings in French (1-3) (F, W)**

Prerequisite: French 101 and consent of the department. Independent study on mutually acceptable topics through readings, reports, and conferences. [H]

**200 Advanced Grammar (3) (W)**

Prerequisite: French 171 or 172, or equivalent.  
Problems in grammatical analysis.

**210 French Civilization (3)**

Prerequisite: French 171 or 172, or equivalent. The culture and civilization of France up to World War I. All reading and classwork in French. [H]

**211 French Civilization (3)**

Prerequisite: French 171 or 172 or equivalent. The culture and civilization of France from World War I to the present. All reading and classwork in French. [H]

**220 Introduction to Linguistics (3)**

(Same as German 220 and Spanish 220) Prerequisite: French 1 and 2 or equivalent and sophomore standing. The historical development of languages, their description and classification, with emphasis on the practical application of contrastive linguistics in foreign language teaching.

**264 Curriculum and Methods of Teaching Foreign Language (3) (F, W)**

(Same as Education 264) Prerequisite: Education 163 and junior standing. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward the techniques and research tools of the scholar in the field of foreign languages.

**271 Intermediate French Conversation (3)**

Prerequisite: French 160 or 171 or consent of department. Emphasis will be placed upon the further development of oral skills in French.

**280 French Literature I: Middle Ages to the Eighteenth Century (3) (F)**

Prerequisite: French 180 or equivalent. Designed to

acquaint the student with the development of French literature from the Middle Ages to the eighteenth century. Critical reading of representative texts. [H]

**281 French Literature II: Nineteenth and Twentieth Centuries (3) (W)**

Prerequisite: French 180 or equivalent. Designed to acquaint the student with the development of French literature from the nineteenth century to the present. Critical reading of representative texts. [H]

**295 Advanced Language Workshop in France (3)**

Prerequisite: Consent of department. Workshop to provide the advanced student of French with a living exposure to the spoken and written language. Classroom instruction will be reinforced through daily contact with the local population. Emphasis is placed on pronunciation, intonation, systematic development of vocabulary, and increased communication skills.

**296 Advanced Workshop in Culture and Civilization in France (3)**

Prerequisite: Consent of department. French culture and civilization will be explored through lectures, discussions, visits, and excursions. [H]

**300 Syntax and Stylistics (3)**

Prerequisite: French 200 or equivalent. Advanced theoretical and practical study of modern French syntax. Analysis of French prose style.

**320 Advanced Oral Composition (3)**

Prerequisite: French 171. Emphasis will be placed upon the development and refinement of skills in spoken French.

**331 Medieval and Renaissance Literature (3)**

Prerequisite: French 280 or 281. Critical reading and analysis of representative works of the period in modernized French versions. [H]

**341 Seventeenth Century French Theatre (3)**

Prerequisite: French 280 or 281. Critical readings of selected plays by Corneille, Moliere, Racine and other dramatists of the seventeenth century. [H]

**342 Seventeenth Century French Prose and Poetry (3)**

Prerequisite: French 280 or 281. A critical study of representative poets and prose writers including novelists and philosophers. [H]

**353 Eighteenth Century French Literature (3) (Alt. F)**

Prerequisite: French 280 or 281. The philosophic movement. Selected works from Montesquieu, Voltaire, Diderot, and Rousseau. [H]

**354 Eighteenth Century French Theatre and Novel (3) (Alt. F)**

Prerequisite: French 280 or 281. Critical reading and discussion of representative novels and plays of the eighteenth century. [H]



**362 Nineteenth Century French Novel (3) (Alt. F)**

Prerequisite: French 280 or 281. Critical reading of selected works by the major novelists of the period. Discussion of realism and naturalism. [H]

**365 Modern French Poetry (3) (Alt. F)**

Prerequisite: French 280 or 281. A study of French poetry in the nineteenth and twentieth centuries through critical readings of selected works by major poets. [H]

**371 Twentieth Century French Novel (3) (Alt. W)**

Prerequisite: French 280 or 281. A study of selected works by the principal novelists of the modern period. [H]

**375 Modern French Theatre (3) (Alt. W)**

Prerequisite: French 280 or 281. A study of French drama in the nineteenth and twentieth centuries through critical study of selected works by major dramatists. [H]

**390 Special Readings (1-10)**

Prerequisite: Consent of the instructor. Independent study through readings, reports, and conferences. [H]

**395 Advanced Language Workshop in France (3)**

Prerequisite: Consent of the department. Workshop to provide the advanced student or teacher of French with a living exposure to the spoken and written language. Classroom instruction will be reinforced through daily contact with the local population. Emphasis is placed on pronunciation, intonation, systematic development of vocabulary, and increased communication skills. Special project agreeable to instructor and student is required.

**396 Advanced Workshop in Culture and Civilization in France (3)**

Prerequisite: Consent of the department. French culture and civilization will be explored through lectures, discussions, visits, and excursions. Special project agreeable to instructor and student is required. [H]

**399 French Seminar (3)**

Prerequisite: French 280 or 281 or equivalent. Specialized topic in French literature. Subject to be announced by instructor in charge of seminar. [H]

**German**

Prerequisites may be waived by consent of department.

**1 Elementary German (5) (F, W)**

Emphasis will be placed upon the speaking and understanding of German and upon the acquisition of the fundamentals of grammar and syntax. One hour laboratory required.

**2 Elementary German (5) (F, W)**

Prerequisite: German 1 or equivalent. Emphasis will be placed upon the speaking and understanding of German and upon the acquisition of the fundamentals of grammar and syntax. One hour laboratory required.

**100 Scientific German (3) (F, W)**

Prerequisite: German 2 or equivalent. Reading of selected German texts in the natural and social sciences. Designed primarily for majors in these areas.

**101 Intermediate German (3) (F, W)**

Prerequisite: German 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections.

**102 Readings in German (3) (F, W)**

Prerequisite: German 101 or equivalent. Further development of language skills through readings and discussion of literary texts. Designed primarily for majors. May be taken concurrently with German 108. [H]

**108 Composition and Conversation (3) (F, W)**

Prerequisite: German 101 or equivalent. Emphasis will be placed on speaking and writing German. May be taken concurrently with German 102.

**110 Masterpieces of German Literature in Translation (3)**

Prerequisite: Sophomore standing. Representative readings in German literature from the beginnings to the present. Emphasis is to be placed upon German literature in the general context of European culture. May be taken to fulfill humanities requirement. May not count toward the German major. [H]

**150 European Literature in Translation: Special Topics (3)**

Major figures, works, or movements in the literature of Europe and their relevance to our own age. Topic announced in advance by the department. Does not count toward major in German. May be taken to fulfill the humanities requirement. [H]

**190 Special Readings (1-3)**

Prerequisite: German 101 and consent of the department. Independent study on mutually acceptable topics through readings, reports, and conferences. [H]

**201 Masterpieces of German Literature (3) (F)**

Prerequisite: Two years of college German or equivalent. Introduction to German literature. Readings and critical analysis of selected works of German literature. [H]

**202 The German Novelle and Drama (3) (W)**

Prerequisite: German 201 or equivalent. Reading and

critical analysis of selected German *Novellen* and dramas. [H]

**208 Intermediate Composition and Conversation (3) (W)**

Prerequisite: German 108 or equivalent. Continuation of German 108. Emphasis on speaking and writing German.

**210 German Culture and Civilization (3) (F)**

Prerequisite: German 102 or equivalent. A survey of the development of German culture and civilization. All reading and classwork in German. [H]

**220 Introduction to Linguistics (3) (F, W)**

(Same as French 220 and Spanish 220) Prerequisite: German 1 and 2 or equivalent and sophomore standing. The historical development of languages, their description and classification, with emphasis on the practical application of contrastive linguistics in foreign language teaching.

**264 Curriculum and Methods of Teaching Foreign Languages (3) (F, W)**

(Same as Education 264) Prerequisite: Education 163, junior standing. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward the techniques and research tools of the scholar in the field of foreign languages.

**295 Advanced Language Workshop in Germany (3)**

Prerequisite: Consent of department. Workshop to provide the advanced student of German with a living exposure to the spoken and written language. Classroom instruction will be reinforced through daily contact with the local population. Emphasis is placed on pronunciation, intonation, systematic development of vocabulary, and increased communication skills.

**296 Advanced Workshop in Culture and Civilizations in Germany (3)**

Prerequisite: Consent of the department. German culture and civilization will be explored through lectures, discussions, visits, and excursions. [H]

**308 Advanced Composition and Conversation (3)**

Prerequisite: German 208 or equivalent. Continuation of German 208. Designed to develop accuracy and fluency of expression in German.

**315 German Classicism and Romanticism (3)**

Prerequisite: German 201 and one other 200-level course in German. Representative writers from the classical and romantic periods of German literature, including works by Lessing, Goethe, Kleist, and E.T.A. Hoffmann. [H]

**320 German Realism and Naturalism (3)**

Prerequisite: German 201 and one other 200-level course in German. Representative writers of realism and naturalism in German literature, including works of Grillparzer, Hebbel, Stifter, Keller, and Hauptmann. [H]

**345 Modern German Literature (3)**

Prerequisite: German 201 and one other 200-level course in German. Representative works from modern German literature. [H]

**390 Special Readings (Credit arranged)**

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. [H]

**395 Advanced Language Workshop in Germany (3)**

Prerequisite: Consent of the department. Workshop to provide the advanced student or teacher of German with a living exposure to the spoken and written language. Classroom instruction will be reinforced through daily contact with the local population. Emphasis is placed on pronunciation, intonation, systematic development of vocabulary, and increased communication skills. Special project agreeable to instructor and student is required.

**396 Advanced Workshop in Culture and Civilization in Germany (3)**

Prerequisite: Consent of the department. German culture and civilization will be explored through lectures, discussions, visits, and excursions. Special project agreeable to instructor and student is required. [H]

**397 Survey of German Literature Part I (3)**

Prerequisite: One other German literature course on the 300 level. Special emphasis on the summary and synthesis of trends and characteristics of major periods in German literature considered in the general context of European culture. [H]

**398 Survey of German Literature Part II (3)**

Prerequisite: One other German literature course on the 300 level. Special emphasis on the summary and synthesis of trends and characteristics of major periods in German literature considered in the general context of European culture. [H]

**399 German Seminar (3) (W)**

Prerequisite: Senior standing and two 300-level courses. Required of all German majors. Topic to be selected by instructor. [H]

**Greek**

Courses in Greek are available at Washington University for UMSL students. Consult the modern foreign languages department for details and obtain the necessary forms from the registrar's office.

**1 Elementary Greek (4)**

Fundamentals of grammar and syntax, for students with no previous acquaintance with the language.

**2 Elementary Greek (4)**

Prerequisite: Greek 1 or equivalent. A continuation of Greek 1. Completion of the survey of grammar and syntax, accompanied by the reading of a short major text, usually a dialogue by Plato or a book of the New Testament.

**Hebrew**

Courses in Hebrew are available at Washington University for UMSL students. Consult the modern foreign languages department for details and obtain the necessary forms from the registrar's office.

**1 Elementary Hebrew (4)****2 Elementary Hebrew (4)****Italian**

Prerequisite may be waived by consent of department.

**1 Elementary Italian (5) (F)**

Fundamentals of Italian grammar, pronunciation, and diction for students with no previous acquaintance with the language. One hour laboratory required.

**2 Elementary Italian (5) (W)**

Prerequisite: Italian 1 or equivalent. Continuation of grammar and conversation with introductory readings centering on Italian contributions to art, literature and music. One hour laboratory required.

**101 Intermediate Italian (3) (F, W)**

Prerequisite: Italian 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections.

**190 Special Readings (Credit arranged)**

Prerequisites: Italian 101 or equivalent. Readings on literary topics mutually acceptable to student and instructor. [H]

**Japanese**

Courses in Japanese are available at Washington University for UMSL students. Consult the modern foreign languages department for details and obtain the necessary forms in the registrar's office.

**1 Elementary Japanese (4)****2 Elementary Japanese (4)****Latin**

Courses in Latin are available at Washington University for UMSL students. Consult the modern foreign languages department for details and obtain the necessary forms in the registrar's office.

**1 Elementary Latin (4)**

Fundamentals of grammar and syntax, for students with no previous acquaintance with the language.

**2 Elementary Latin (4)**

Prerequisite: Latin 1 or equivalent. A continuation of Latin 1. Completion of the survey of grammar and syntax, accompanied by the reading of a short major text or texts.

**100 Medieval Latin and Paleography (3)**

Prerequisite: An elementary knowledge of classical Latin. Medieval Latin grammar, acquired through the study of medieval tracts in manuscript.

**Portuguese**

Courses in Portuguese are available at St. Louis University for UMSL students. Consult the modern foreign languages department for details and obtain the necessary forms in the registrar's office.

**1 Elementary Portuguese (4)****2 Elementary Portuguese (4)****Russian**

Prerequisites may be waived by consent of department.

**1 Elementary Russian (5) (F, W)**

Emphasis will be placed upon the speaking and understanding of Russian and upon the acquisition of the fundamentals of grammar and syntax. Five hours of class and one hour laboratory.

**2 Elementary Russian (5) (F, W)**

Prerequisite: Russian 1 or equivalent. Emphasis will be placed upon the speaking and understanding of Russian and upon the acquisition of the fundamentals of grammar and syntax. Five hours of class and one hour laboratory required.

**100 Scientific Russian (3)**

Prerequisite: Russian 2 or equivalent. Introduction to reading of selected Russian texts in the natural and social sciences. Designed primarily for majors in these areas.

**101 Intermediate Russian (3)**

Prerequisite: Russian 2 or equivalent. Further presentation of the structure of Russian; development of oral and aural skills; elementary composition; readings of simplified texts.

**102 Intermediate Russian (3)**

Prerequisite: Russian 101 or equivalent. Further development of language skills through the reading and discussion of literary texts. May be taken concurrently with Russian 108 after consultation with instructor. [H]

**108 Oral and Written Composition (3)**

Prerequisite: Russian 102 or equivalent. Emphasis will be placed upon the development of oral and written skills. May be taken concurrently with Russian 102 after consultation with instructor.

**110 Russian Literature in Translation (3)**

Reading of representative works drawn from nineteenth century Russian literature. Course will focus upon works of Pushkin, Lemontov, Gogol, and Turgenyev. Lectures and discussion. May be taken to fulfill humanities requirement. [H]

**112 Twentieth Century Russian Soviet Literature in Translation (3)**

Reading and discussion of the most representative writings from Gorki to Pasternak. May be taken to fulfill humanities requirement. [H]

**190 Special Readings (Credit arranged)**

Prerequisites: Russian 101 or equivalent. Readings on literary topics mutually acceptable to student and instructor. [H]

**200 Syntax of the Russian Language (3)**

Prerequisite: Russian 108 or equivalent. Synchronic analysis of the phonemic, morphological, syntactic, and semantic system of present-day Russian; dialectal variations.

**Spanish**

Prerequisites may be waived by consent of department.

**1 Elementary Spanish (5) (F, W)**

Emphasis will be placed upon the speaking and understanding of Spanish and upon the acquisition of the fundamentals of grammar and syntax. One hour laboratory required.

**2 Elementary Spanish (5) (F, W)**

Prerequisite: Spanish 1 or equivalent. Emphasis will be placed upon the speaking and understanding of Spanish and upon the acquisition of the fundamentals of grammar and syntax. One hour laboratory required.

**101 Intermediate Spanish (3) (F, W)**

Prerequisite: Spanish 2 or equivalent. Grammar review and cultivation of language skills through the study of selected modern works.

**103 Intermediate Spanish (3) (F, W)**

Prerequisite: Spanish 2 or equivalent. Accelerated

grammar review and cultivation of language skills through the study of selected modern works. Designed primarily for those students intending to major in Spanish. Credit is not granted for both Spanish 101 and 103.

**110 Spanish Literature in Translation (3)**

Prerequisite: Sophomore standing. Lectures on the literature and culture of Spain from the Middle Ages to the contemporary period. Reading and discussion of works of representative Spanish writers: Cervantes, Calderón, Galdós, Unamuno, Garcia Lorca, Buero Vallejo, and others. May be taken to fulfill humanities requirement. May not count toward the Spanish major. [H]

**111 Spanish American Literature in Translation (3)**

Prerequisite: Sophomore standing. Lectures on the literature and culture of Spanish America. Reading and discussion of works of representative poets, novelists, and essayists of the contemporary period. May be taken to fulfill humanities requirement. May not count toward the Spanish major. [H]

**150 European Literature in Translation: Special Topics (3)**

Major figures, works, or movements in the literature of Europe and their relevance to our own age. Topic is announced in advance by the department. Does not count toward major in Spanish. May be taken to fulfill the humanities requirement. [H]

**171 Spanish Conversation and Pronunciation (3) (F)**

Prerequisite: Spanish 101 or equivalent. Emphasis will be placed upon the development of oral skills in Spanish and upon the problems of Spanish pronunciation and intonation. May be taken concurrently with Spanish 101 after consultation with instructor.

**172 Spanish Composition (3) (W)**

Prerequisite: Spanish 101 or equivalent. Emphasis in developing the capacity and the ability to write in Spanish. May be taken concurrently with Spanish 101 after consultation with instructor.

**190 Special Readings (1-3)**

Prerequisite: Spanish 101 and consent of the department. Independent study on mutually acceptable topics through readings, reports, and conferences. [H]

**200 Syntax of the Spanish Language (3) (W)**

Prerequisite: Spanish 171 or 172, or equivalent. Study of the syntactical and morphological characteristics of the Spanish language as seen in representative selections from Hispanic literature. Designed primarily for students majoring in Spanish. May be taken concurrently with any 200-level course.

**210 Hispanic Culture and Civilization: Spain (3) (F)**  
Prerequisite: Spanish 171 or 172 or equivalent. The development of Spanish peninsular civilization from its Romantic beginnings to the present. [H]

**211 Hispanic Culture and Civilization: Spanish America (3) (W)**  
Prerequisite: Spanish 171 or 172 or equivalent. The development of the cultures and civilization of the Spanish-speaking nations of the Western hemisphere. [H]

**220 Introduction to Linguistics (3) (F, W)**  
(Same as French 220 and German 220) Prerequisite: Spanish 1 and 2 or equivalent and sophomore standing. The historical development of languages, their description, and classification, with emphasis on the practical application of contrasting linguistics in foreign language teaching.

**264 Curriculum and Methods of Teaching Foreign Languages (3) (F, W)**  
(Same as Education 264) Prerequisite: Education 163 and junior standing. A study of the scope and sequence of the foreign language courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward the techniques and research tools of the scholar in the field of foreign languages.

**280 Introduction to Hispanic Literature; Spain (3) (F)**  
Prerequisite: Spanish 171 or 172, or equivalent. Study of selected texts of Spanish writers from the Middle Ages to the present and the historical, cultural, and political factors which influence their writings. Required for Spanish majors. [H]

**281 Introduction to Hispanic Literature: Spanish America (3) (W)**  
Prerequisite: Spanish 101. Study of selected texts of Spanish American writers from the Colonial period to the present and the historical, cultural, and political factors which influenced their writings. Required for Spanish majors. [H]

**295 Advanced Language Workshop in Spain (3) (S)**  
Prerequisite: Consent of the department. Workshop to provide the advanced student of Spanish with a living exposure to the spoken and written language. Classroom instruction will be reinforced through daily contact with the local population. Emphasis is placed on pronunciation, intonation, systematic development of vocabulary, and increased communication skills.

**296 Advanced Workshop in Culture and Civilization in Spain (3) (S)**  
Prerequisite: Consent of the department. Spanish culture and civilization will be explored through lectures, discussions, visits, and excursions. [H]

**310 Spanish Literature from 1898 to 1939 (3)**  
Prerequisite: Spanish 280. A study of cultural and literary characteristics of the period. Emphasis on leading novelists, poets, essayists, and dramatists. [H]

**315 Spanish Literature from 1939 to the Present (3)**  
Prerequisite: Spanish 280. A study of cultural and literary developments since the Spanish Civil War. Emphasis on leading novelists and dramatists. [H]

**320 Realism and Naturalism in the Nineteenth Century Spanish Novel (3)**  
Prerequisite: Spanish 280. A study of the culture and literature of Spain in the nineteenth century with emphasis on the leading novelists of this epoch (Galdós, Clarín, Pardo Bazán, Blasco-Ibáñez). [H]

**321 Spanish Poetry and Drama of the Nineteenth Century (3)**  
Prerequisite: Spanish 280. A study of the culture and literature of Spain in the nineteenth century with emphasis on the leading poets (Espronceda, Bécquer) and playwrights (Zorrilla, Duque de Rivas). [H]

**325 Poetry and Drama of the Golden Age (3) (Alt. W)**  
Prerequisite: Spanish 280. Selective readings from the drama of Lope de Vega, Tirso de Molina, Ruiz de Alarcón, Calderon de la Barca, and from the poetry of Garcilaso, Fray Luis de León, San Juan de la Cruz, Góngora, Lope de Vega, Quevedo. [H]

**330 Cervantes (3)**  
Prerequisite: Spanish 280. A study of Don Quixote in relation with the author's life and with the cultural background of the Spanish Golden Age. Independent reading of other works of Cervantes. [H]

**335 Masterpieces of Spanish Medieval and Renaissance Literature (3) (Alt. F)**  
Prerequisite: Spanish 280. Designed to acquaint students with the cultural background of Medieval and Renaissance Spanish traditions. Critical reading and discussion of representative works of these periods: Poema del Cid; El Conde Lucanor; Libro de Buen Amor; El Romancero; La Celestina; the picaresque novel, and Don Quixote. [H]

**340 Spanish American Literature of the Nineteenth Century (3) (Alt. W)**  
Prerequisite: Spanish 281. A study of the culture and literature of Spanish America in the nineteenth century with emphasis on the leading novelists and essayists of the epoch. [H]

**341 Modernismo (3) (F)**  
Prerequisite: Spanish 281. The genesis, development, and influence of this literary movement in Spanish American letters with emphasis on modernista poetry and prose. [H]

## Philosophy

### 345 Spanish American Literature of the Twentieth Century (3)

Prerequisite: Spanish 281. A study of the leading Spanish American poets, essayists, and novelists of this period as interpreters of contemporary man's dilemma and the "pathos" and "ethos" of their culture. [H]

### 351 Spanish American Fiction of the Twentieth Century (3)

Prerequisite: Spanish 281. The role of prose fiction in Spanish American literary and cultural history from World War I to the present. [H]

### 360 Spanish American Poetry from Modernismo to the Present (3)

Prerequisite: Spanish 281. A study of poetry and its role in the literary and cultural history of Spanish American society from Modernismo to the present. [H]

### 390 Special Readings (1-10)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. [H]

### 395 Advanced Language Workshop in Spain (3) (S)

Prerequisite: Consent of the department. Workshop to provide the advanced student or teacher of Spanish with a living exposure to the spoken and written language. Classroom instruction will be reinforced through daily contact with the local population. Emphasis is placed on pronunciation, intonation, systematic development of vocabulary, and increased communication skills. Special project agreeable to instructor and student is required.

### 396 Advanced Workshop in Culture and Civilization in Spain (3) (S)

Prerequisite: Consent of the department. Spanish culture and civilization will be explored through lectures, discussions, visits, and excursions. Special project agreeable to instructor and student is required. [H]

### 399 Seminar on Hispanic Literature (3) (W)

Required of major students in the senior year. Subject to be announced every year by the instructor in charge of the seminar. [H]

Prerequisites may be waived by consent of department.

### 50 Major Questions in Philosophy (3) (F, W)

A study and discussion of representative topics in philosophy such as free will and determinism, concepts of mind and body, the basis of value judgments, knowledge and belief, and the possibility of constructing a world view. [H]

### 60 Logic and Language (3) (F, W)

An introduction to the language and logical structure of arguments, the principles of sound reasoning, and application of these principles in a variety of contexts. [H]

### 75 Approaches to Ethics (3) (F, W)

A study and discussion of representative topics in moral philosophy such as moral skepticism, moral objectivity, theories of obligation and value, evaluation of social institutions, and the relation between morality and science. Traditional and contemporary writers will be considered. [H]

### 85 Philosophy of Religion (3) (F, W)

A philosophical investigation of such problems as the nature of religious faith and experience, the relation of faith and reason, alternative concepts of deity, and the problem of evil. [H]

### 90 Freshman Seminar (3)

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students. [H]

### 105 Philosophy and Literature (3)

Freshmen admitted by consent of department. Critical reading and discussion of selected literary works in terms of the philosophical problems they present. [H]

### 150 Philosophy and Current Issues (3)

A careful examination of such current social controversies as women's liberation, the ethics of abortion, public accountability of holders of high offices, and the subtler forms of racism and other prejudices. Although there is no formal prerequisite, it is recommended that students have taken, or be concurrently enrolled in, at least one other philosophy course. [H]

### 160 Formal Logic (3) (F, W)

An introductory study of logical truth and deductive inference, with emphasis on the development and mastery of a formal system. [H]

### 170 Asian Philosophy (3) (F, W)

Critical study of selected philosophical classics of India and China. [H]

**181 Ancient Philosophy (3)**

Freshmen admitted by consent of department. The principal philosophical doctrines of the ancient world, with special emphasis on the philosophies of Plato and Aristotle. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course, especially Philosophy 50 or its equivalent. [H]

**182 Medieval Philosophy (3)**

A critical study of the important philosophies of the period from Augustine to the Renaissance. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course, especially Philosophy 50 or its equivalent. [H]

**183 Early Modern Philosophy (3)**

Principal figures in the development of rationalism, empiricism, and skepticism in early modern Europe, from Descartes through Hume. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course, especially Philosophy 50 or its equivalent. [H]

**184 Kant and Nineteenth Century Philosophy (3)**

A study of Kant and such major nineteenth century figures as Hegel and Nietzsche, Mill and Pierce. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course, especially Philosophy 50 or its equivalent. [H]

**185 Twentieth Century Philosophy (3)**

Representative topics in contemporary philosophy, with readings selected from pragmatism, logical positivism, linguistic analysis, and existentialism. Although there is no formal prerequisite, it is recommended that students have taken at least one other philosophy course, especially Philosophy 50 or its equivalent. [H]

**210 American Philosophy (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A study of selected American philosophers. [H]

**220 Philosophical Issues in Education (3)**

A critical study and discussion of selected topics in education, including the distinctive features of education as an activity and achievement, concepts of teaching and learning, relations between education and values, and the functions of a university. [H]

**225 Philosophy of Art (3)**

A study of issues concerning the definition of art, meaning and truth in the arts, aesthetic experience, and criticism. [H]

**230 Social and Political Philosophy (3)**

An analysis of some fundamental concepts and assumptions involved in the theory and practice of social and political organization. [H]

**235 Classical Ethical Theories (3)**

Significant contributions to moral philosophy from Plato and Aristotle to Bentham and Mill. [H]

**240 Philosophy of History (3)**

Discussion and analysis of some philosophical problems raised by historical inquiry such as subjectivity, relativism, the role of value judgments, and the nature of historical explanation. [H]

**245 Existentialism and Phenomenology (3)**

A study of some major representatives of these schools from Kierkegaard to the present. [H]

**250 Philosophy of Science (3) (F)**

An examination of logical and methodological problems, related to the sciences, including the structure of scientific explanations, laws, and theories; methods of concept formation; and confirmation and the problem of induction. [H]

**255 Philosophy of Social Science (3)**

A detailed analysis of issues raised by the social sciences, including the logical characterization of explanations, predictions, laws and theories; types of reductionism; objectivity, values; and the empirical basis of the social sciences. [H]

**260 Logical Explorations (3)**

Prerequisite: Philosophy 160. A variable content course in which techniques of modern logic are used to explore one or more of the following topics; modal logic, the logic of decision and action, value theory and decision analysis, induction and inductive logic, the logic of knowledge and belief, system construction, and contemporary logical theory. The topic will be announced prior to registration. This course may be repeated for credit on approval by the department. [H]

**265 Philosophy of Law (3)**

An examination of typical problems raised by law, including the basis of legal obligations and rights, relations between law and morality, the logic of legal reasoning, and the justification for punishment. [H]

**269 The Marxist Heritage (3) (W)**

(Same as Political Science 269) Study of Marx and leading Marxists, designed to evaluate their influence on recent political, economic, and social thought and institutions. [H] or [SS]

**270 Philosophy of Language (3)**

A study of the nature and structure of language and its relationship to selected philosophical problems. Included will be such topics as ordinary language

philosophy, significant developments in twentieth century linguistics, prospects for semantic theory, and a discussion of traditional problems of meaning, reference, and synonymy. [H]

**278 Philosophy of Mind (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A study of concepts and problems in the philosophy of mind such as the identity theory, minds and machines, thinking, will, emotion, action, and intention. [H]

**280 Theories of Knowledge (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. An examination of concepts and problems involved in the characterization of knowledge. Specific topics will vary, but will usually include knowledge, belief, skepticism, evidence, certainty, perception, truth, and necessity. [H]

**281 Metaphysics (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. An examination of selected metaphysical topics such as substance, universals, causality, necessity, space and time, free will, being, and identity. [H]

**283 Problems in Philosophical Theology (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. An intensive study of problems arising out of traditional and contemporary philosophical theology. [H]

**285 Recent Ethical Theory (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A study of major contributions to twentieth century ethics, including works by such writers as Moore, Dewey, Ross, Stevenson, Hare, and Rawls. [H]

**291 Senior Thesis (1-10) (F, W)**

Prerequisite: Consent of department. Directed individual research for qualified senior majors. At least 6 hours are required for departmental honors in philosophy. May be repeated, but no more than 9 hours may be credited toward a degree. [H]

**301 Plato (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A study of selected Platonic dialogues. [H]

**302 Aristotle (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A selective study of Aristotle's major works. [H]

**305 The Rationalists (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. An examination of the philosophies of such major figures as Descartes, Spinoza, and Leibniz. [H]

**306 The British Empiricists (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. An examination of the philosophies of such major figures as Locke, Berkeley, and Hume. [H]

**307 Kant (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A systematic study of the *Critique of Pure Reason*. [H]

**308 Hegel (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A critical study of the writings and influence of Hegel. [H]

**350 Special Readings (1-10) (F, W)**

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. [H]

**360 Advanced Formal Logic (3)**

Prerequisite: Philosophy 160 or consent of the instructor. Rigorous study of major developments in contemporary logic. Emphasis is given to theoretical problems and some attention devoted to philosophical issues arising from logic. [H]

**370 Significant Figures in Philosophy (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A critical study of the work of an important philosopher. The philosopher to be considered will be announced prior to registration. This course may be repeated for credit on approval by the department. [H]

**380 Special Topics in Philosophy (3)**

Prerequisite: 6 hours of philosophy or consent of instructor. A critical study of classical and/or contemporary contributions to a selected topic in philosophy. The topic to be considered will be announced prior to registration. This course may be repeated for credit on approval by the department. [H]

**390 Philosophical Issues in Other Disciplines (3)**

Prerequisite: Consent of instructor. An examination of selected philosophical issues in a discipline other than philosophy. One or more such disciplines as history, political science, psychology, sociology, biology, physics, or mathematics will be chosen and philosophical issues selected and announced prior to registration, usually in consultation with the other department concerned. This course is normally taught as a seminar and attempts to serve advanced students in other departments with or without previous background in philosophy. [H]



## Physics

**Prerequisites may be waived by consent of department.**

### Astronomy

#### 1 Cosmic Evolution-Introductory Astronomy (4) (F, W)

Planets: A brief survey of their motions and properties. Stars: Observations, including stellar spectra and colors; stellar evolution and star clusters. Galaxies: Structure and content of the Milky Way Galaxy, its relationship to other galaxies. Cosmology: The origin and evolution of the universe. Three lectures and two multi-media. [SM]

#### 11 Planets and Life in the Universe (4) (F)

Man's concept of the solar system from Stonehenge to Einstein; geology and meteorology of the planets of our solar system, with particular attention to results from the space program; exobiology—study of the possibilities of life on other worlds and the best method of communicating with it. Three lecture hours and one observing session per week. [SM]

#### 12 The Violent Universe and the New Astronomy (4) (W)

Prerequisite: Astronomy 1 or consent of instructor. A non-technical course focusing on recent results which larger telescopes and the space program have made available. Pulsars, X-ray stars, and black holes; radio astronomy, our galaxy, and interstellar molecules; exploding galaxies and quasars; origin of the expanding universe. Three lecture hours and one observing session per week. [SM]

#### 101 Practical Astronomy (3)

Prerequisite: One course in astronomy or consent of instructor. Tools of the astronomer: telescopes, photometers, and so on. Students will work on a number of projects which will enable them to develop expertise in obtaining, reducing, and analyzing astronomical observations. Student observing will be an important part of the course. [SM]

#### 201 Astrophysics (3)

Prerequisite: Mathematics 80, Physics 111, or consent of instructor. A moderately technical introduction to astrophysics. Topics will include: physics of stellar interiors and atmospheres; interpretation of stellar spectra; stellar evolution; radio astronomy; and cosmology. [SM]

### Atmospheric Science

#### 1 Elementary Meteorology (4) (W)

Prerequisite: High school physics or chemistry. An elementary survey of atmospheric phenomena intended to fulfill the science requirement. Topics included are temperature, pressure, and moisture distributions in the atmosphere and dynamical effects

such as radiation, stability, storms, and general circulation. Applications to weather forecasting. Three hours lecture and two hours laboratory per week. [SM]

### Engineering

#### 30 Engineering Graphics (3)

Prerequisite: Mathematics 40 or equivalent. Lettering, drafting equipment, technique, and standards. Technical sketching, engineering curves, charts, and graphs. Multi-view and pictorial drawing, space analysis of lines, planes, and solids. Basic dimensioning, sections, shop processes and shop drawings and sketches. Engineering organization charts and flow diagrams. Design analysis and use of standard parts. Graphical mathematics, micro-filming, computer drafting, and reproduction processes. Creative design.

#### 85 Statics and Elementary Strength of Materials (3)

Prerequisites: Mathematics 80, Physics 111 or 111 concurrently. Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials. [SM]

#### 185 Introduction to Dynamics (3)

Prerequisite: Engineering 85. Basic fundamentals of particle and rigid body dynamics; energy and momentum methods. [SM]

#### 201 Elementary Electronics I (3)

(Same as Physics 201). Prerequisite: Physics 112. Primarily a laboratory study of characteristics of standard circuit elements, amplifier circuits, power supplies, operational amplifiers, digital and switching circuits, servo systems, shielding and noise problems, transducers, and oscilloscopes. Six hours laboratory per week. [SM]

#### 202 Elementary Electronics II (3)

(Same as Physics 202). Prerequisite: Engineering 201. Continuation of Engineering 201. Six hours laboratory per week. [SM]

### Geology

#### 1 General Geology (4) (F, W)

Earth materials, geologic processes, and earth history, and the application of geology to the problems in urban development and conservation. [SM]

#### 2 Historical Geology (4)

Study of changes in geography, climate, and life through geologic time; origin of continents, ocean basins, and mountains in light of continental drift; urban development and energy resources. Three hours lecture and one hour laboratory. [SM]

**101 Urban Geology (4)**

Prerequisite: Geology 1. Techniques and action course dealing with geologic and environmental problems of urbanized areas. [SM]

**130 Common Rocks and Minerals (3)**

Prerequisite: Geology 1. Laboratory and field identification of common minerals and rocks by physical properties. One hour lecture and two hours laboratory. [SM]

**290 Research (1-10) (F, W, S)**

Prerequisites: Consent of instructor. Independent geology research projects arranged between student and instructor. Hours arranged. [SM]

**Physics****1 Foundations of Modern Physical Theory I (4) (F, W, S)**

Prerequisite: Mathematics 2 or equivalent. An introduction to some of the major ideas, principles, and basic laws directing the development of contemporary physics. The course work consists of two general lectures each week in which the material is introduced, one discussion session, and one two-hour multi-media laboratory. [SM]

**10 Experimentation in Physics (2) (F, W, S)**

Prerequisite: Mathematics 40 (may be taken concurrently) or equivalent. A laboratory course designed to introduce the students to electrical circuits and elementary electronics. No prior knowledge of circuits or electronics will be assumed. Four hours laboratory per week. [SM]

**11 Basic Physics (4) (F)**

Prerequisite: Mathematics 30 or 40. A survey course specifically designed for students in the health and life science covering such topics as classical mechanics, heat, sound, electricity, magnetism, light, and radiation. No credit is given for students majoring in physics, chemistry, or engineering. Three hours of lecture and two hours laboratory. [SM]

**12 Basic Physics (4) (W)**

Prerequisite: Physics 11. A continuation of Physics 11. [SM]

**111 Physics: Mechanics and Heat (3) (F, W)**

Prerequisite: Mathematics 80 or 101; Physics 1, Chemistry 12, or equivalent is recommended. An introduction to the phenomena, concepts and laws of mechanics and heat for physics majors and students in other departments. Three hours lecture plus one hour discussion per week. [SM]

**112 Physics: Electricity, Magnetism, and Optics (3) (F, W)**

Prerequisite: Physics 111 and Mathematics 175 or 101. A phenomenological introduction to the

concepts and laws of electricity and magnetism, electromagnetic waves, optics, and electrical circuits for physics majors and students in other departments. Three hours lecture plus one hour discussion per week. [SM]

**113 Physics: The Structure of Matter (3) (F)**

Prerequisite: Physics 112. A phenomenological introduction to selected concepts and laws of physics as they are applied to the structure of matter. Elements of atomic, nuclear, and molecular physics will be discussed. Three hours lecture plus one hour discussion per week. [SM]

**170 Physics of Music (3) (F)**

Prerequisite: Mathematics 02 or equivalent. Musical sound is the subject matter of this course: how it originates (musical instruments), how it is reproduced (stereo sound systems), how it is transmitted, and how it is perceived. [SM]

**171 Applications of the Physics of Music (2)**

Prerequisite: Mathematics 02 or equivalent. Demonstrations and experiments concerning the origination, the reproduction, the synthesis, the transmission, and the detection of musical sounds. [SM]

**172 Light and Color (3)**

Prerequisite: Mathematics 02. A study of the physical concepts as they relate to light, color, and visual phenomena. Models of light applied to reflection, refraction, diffraction, and interference. Optical devices such as the eye and the camera will be studied. Visual and color perception. [SM]

**173 Applications of Light and Color (2)**

Prerequisite: Mathematics 02. Demonstrations and experiments leading to a physical understanding of the behavior of light from source to detector whether that be the eye or a camera. Phenomena such as reflection, refraction, diffraction, and interference will be demonstrated. Color analysis and synthesis. [SM]

**190 Energy (3)**

(Same as Chemistry 190)

Prerequisite: Junior standing. Perspectives and approaches to the energy problem from a physical and social science viewpoint. The course will involve lectures given by physical and social scientists and also assisted research by students of various aspects of energy production, conversion, use, environmental impact, and policy determination. [SM]

**200 Survey of Theoretical Physics (3) (W)**

Prerequisite: Physics 111 and Mathematics 201. Mathematical techniques specifically used in the study of mechanics, electricity, and magnetism, and atomic physics, are developed in the context of various physical problems. The major areas covered are vector analysis, solutions of Laplace's equation, coordinate systems, and numerical techniques. [SM]

**201 Elementary Electronics I (3) (F, W, S)**

Prerequisite: Physics 112. Primarily a laboratory study of characteristics of standard circuit elements, amplifier circuits, power supplies, operational amplifiers, digital and switching circuits, servo systems, shielding and noise problems, transducers, and oscilloscopes. Six hours laboratory per week. [SM]

**202 Elementary Electronics II (3) (F, W, S)**

Prerequisite: Physics 201. Continuation of Physics 201. Six hours laboratory per week. [SM]

**221 Mechanics (3) (F)**

Corequisite: Physics 200 and Mathematics 302. Advanced course covering rigid body dynamics, damped and undamped oscillatory motion, with an introduction of Lagrange's equations and variational principles. Three hours lecture and one hour discussion per week. [SM]

**223 Electricity and Magnetism (3) (F)**

Prerequisite: Physics 220 and Mathematics 302 (Mathematics 302 may be taken concurrently). Electromagnetic fields, including electrostatics, dielectric materials, solution to Laplace's equation, currents and magnetic fields, motion to charged particles, introduction to electromagnetic waves. Three hours lecture and one hour discussion per week. [SM]

**225 Physical Optics (3) (W)**

Prerequisite: Physics 223. A basic study of light; interference, diffraction, crystal optics, reflection, scattering, and light quanta. Three hours lecture and one hour discussion per week. [SM]

**241 Thermal and Statistical Physics (3) (W)**

Prerequisite: Mathematics 201 and Physics 113. Introduction to statistical mechanics, laws of thermodynamics, kinetic theory. Three hours lecture and one hour discussion per week. [SM]

**280 Methods of Teaching Physics in Secondary Schools (3) (W)**

(Same as Education 280)  
Prerequisite: Education 163 and a near-major in the subject area. A study of the scope and sequence of the science courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science.

**281 Directed Readings in Physics (1-10) (F, W, S)**

Prerequisite: Consent of instructor. A study of the literature of physics. A paper is required on an approved topic. Hours arranged. [SM]

**282 History of Physics (3) (F)**

Prerequisite: Physics 1 or Astronomy 1. A study of

the historical evolution of physics. Three hours lecture per week. [SM]

**289 Seminar (1) (F, W)**

Presentation of selected papers by students and faculty members at weekly meetings. May be taken twice for credit. [SM]

**290 Research (1-10) (F, W, S)**

Prerequisite: Consent of department. Independent physics research projects arranged between student and instructor. Hours arranged. [SM]

**295 Selected Topics in Physics for the Secondary School Teacher I (2) (F)**

A basis for understanding the current developments in science is provided for the secondary school science teacher. The content of the course will be generally directed towards macroscopic phenomena.

**296 Selected Topics in Physics for the Secondary School Teacher II (2) (W)**

Prerequisite: Physics 295. A basis for understanding the current developments in science is provided for the secondary school science teacher. The content of the course will be generally directed toward macroscopic phenomena.

**297 Selected Topics in Physics for the Secondary School Teacher III (2) (F)**

A basis for understanding the current developments in science is provided for the secondary school science teacher. The content of the course will be generally directed towards microscopic phenomena.

**298 Selected Topics in Physics for the Secondary School Teacher IV (2) (W)**

Prerequisite: Physics 297. A basis for understanding the current developments in science is provided for the secondary school science teacher. The content of the course will be generally directed toward microscopic phenomena.

**301 Introduction to Mathematical Physics (3) (F)**

Prerequisite: 16 hours of physics. A course covering mathematical techniques as applied to the equations of theoretical physics; calculus of variations; Green's functions; linear vector spaces; integral equations. Three hours lecture and one hour discussion per week. [SM]

**305 Physical Applications of Group Theory (3) (W)**

Prerequisite: Physics 113. Elements of group theory and group representations. Point symmetry groups and applications to the physics of crystals. The rotation group in two and three dimensions with application to atomic and nuclear spectroscopy. Three hours lecture and one hour discussion per week. [SM]

**311 Advanced Physics Laboratory I (2) (F)**

Prerequisite: Physics 113, 201, 221, and Mathematics

122. Physics majors are introduced to the experimental techniques used in research. A student will choose and do several special problems during the semester. Six hours laboratory per week. [SM]

**312 Advanced Physics Laboratory II (2) (W)**

Prerequisite: Physics 113, 201, 221, and Mathematics 122. Continuation of Physics 311. Six hours laboratory per week. [SM]

**325 Linear Analysis of Physical Systems (3) (W)**

Prerequisite: Physics 201, Mathematics 302. Signals and Systems, Fourier and Laplace analysis, transform methods, amplitude phase and delay, transfer functions and filters. Three hours lecture and one hour discussion per week. [SM]

**331 Introduction to Quantum Mechanics (3) (F)**

Prerequisite: Physics 113, 221, 223, 241. Elementary treatment of quantized mechanical systems, methods of Schrodinger's wave mechanics, operator techniques, and perturbation theory. Three hours lecture and one hour discussion per week. [SM]

**335 Atomic and Nuclear Physics (3) (W)**

Prerequisite: Physics 331. Application of Schrodinger's equation to hydrogen-like atoms; atomic structure and spectra; nuclear masses, energy levels; alpha, beta, and gamma radiation, nuclear reactions, models of the nucleus. Three hours lecture and one hour discussion per week. [SM]

**343 Selected Topics in Physics I (3) (F)**

Prerequisite: Physics 113, 221, 223, 225, 241, and Mathematics 316. (Mathematics 316 may be taken concurrently.) Topics include special phenomena such as scattering of waves, thermal motion in gases, atmospheric disturbances, treated by methods of advanced mechanics, electromagnetism, and quantum mechanics. Three hours lecture and one hour discussion per week. [SM]

**344 Selected Topics in Physics II (3) (W)**

Prerequisite: Physics 343. Continuation of Physics 343. Three hours lecture and one hour discussion per week. [SM]

**351 Elementary Solid State Physics (3) (W)**

Prerequisite: Physics 331. Theoretical and experimental aspects of solid state physics, including one-dimensional band theory of solids; electron emission from metals and semiconductors; electrical and thermal conductivity of solids. Three hours lecture and one hour discussion per week. [SM]

**353 Physics of Fluids (3) (F)**

Prerequisite: Physics 221, 223, and 241, or consent of instructor. Topics from the theory of gases, liquids, or plasmas. Dynamical properties of one of these forms of matter will be developed with contemporary applications stressed. [SM]

**354 Atmospheric Physics (3) (W)**

Prerequisite: Physics 241. Topics from dynamic and physical meteorology including the ionosphere. Application of thermodynamics, optics, radiation, and mechanics to atmospheric phenomena. [SM]

**355 Topics in Space Physics (3) (F)**

Prerequisite: Physics 221. Corequisite: Physics 223. The two body central force problem, satellite orbits, comets, and asteroids, Lagrangian points and the Anti Earth, the Trojans of Jupiter, artificial satellites, transfer orbits and missions, rocket dynamics. The solar environment, trapping of charged particles in magnetic fields, Earth's radiation belts, the solar wind aurorae and whistlers, sailing on the solar wind, the cosmic ray problem. Introduction to magnetohydrodynamics, MHD waves, sun spot movement, applications of MHD, generation of electric power, the ion rocket engine. [SM]

**356 Quantum Optics (3) (W)**

Prerequisite: Physics 113 and 200. Mathematics 302. Review of atomic theory and spectroscopy. Selected applications to modern optical phenomena such as optical pumping, lasers, masers, Mossbauer effect, and holography. [SM]

**357 Applied Solid State Physics (3) (F&S)**

Prerequisite: Physics 113 and 241. Quantum theory needed for solids. Survey of solid state topics such as conductors, semiconductors, insulators with applications to transistors, solid state lasers, and other contemporary devices. [SM]

**381 Directed Readings in Physics (Credit arranged)**

Prerequisite: Consent of instructor. A study of special topics in physics for senior undergraduates or graduate students. [SM]

**400 Computational Physics (3)**

Prerequisite: Mathematics 122 or equivalent. Numerical analysis and computer analysis in physics; solutions of eigenvalue problems; coupled differential equations; writing of Fortran programs. [SM]

**401 Principles of Mathematical Physics (3)**

Boundary value problems; Green's function techniques; introduction to group theory with emphasis on representations of Lie Algebras. [SM]

**408 Survey of Applied Theoretical Physics I (4)**

Prerequisites: Physics 200, 221, and 223. Methods and applications of classical dynamics, electrodynamics, and field theory. [SM]

**409 Survey of Applied Theoretical Physics II (4)**

Prerequisites: Physics 241 and 331 (Physics 408 recommended). Continues Physics 408 with methods and applications of quantum mechanics and statistical mechanics. [SM]

**418 Survey of Phenomenology in Applied Physics I (4)**

Prerequisites: Physics 221, 223, and 241; Mathematics 202. Model descriptions of various phenomena and experimental techniques such as spectroscopy, lasers, cryogenics, superconductivity, solid state, gas discharges, and vacuum techniques. [SM]

**419 Survey of Phenomenology in Applied Physics II (4)**

Prerequisites: Physics 221, 223, and 241; Mathematics 202 (Physics 418 recommended). Continuation of Physics 418 in which a more advanced description of spectroscopy technique, quantum optics, low temperatures, physical systems, and electron physics is included. [SM]

**421 Theoretical Mechanics (3)**

Lagrangian and Hamiltonian formulation of mechanics; canonical transformations; action angle variables; Poisson brackets; small oscillation theory. [SM]

**423 Classical Electrodynamics (3)**

Prerequisite: Physics 401 and 421. Boundary value problems in electrostatics; Maxwell's equations; multipole expansion; radiation theory; special relativity. [SM]

**424 Applications of Electrodynamics (3)**

Prerequisite: Physics 423. Applications of electrodynamics to waveguides, antenna design, accelerator design. [SM]

**431 Quantum Mechanics I (3)**

Prerequisite: Physics 331 and 401. Formal development of quantum mechanics in Heisenberg and Schroedinger pictures, solvable problems; Reyleigh-Schroedinger perturbation theory; angular momentum. [SM]

**432 Quantum Mechanics II (3)**

Prerequisite: Physics 431. A continuation of 431. Scattering theory; relativistic quantum mechanics; introduction to field theory. [SM]

**433 Quantum Electrodynamics (3)**

Prerequisite: Physics 432. Interaction representation; Feynman perturbation theory; renormalization theory, axiomatic field theory and dispersion relations. [SM]

**434 Special Topics in Quantum Theory (3)**

Prerequisite varies according to material covered. Special applications of quantum theory to such systems as quantum electronics, collision theory, S Matrix Theory, etc. May be repeated for credit. [SM]

**441 Statistical Mechanics (3)**

Prerequisite: Physics 431. Ensembles; classical and quantum statistics; relation to thermodynamics; H theorem; applications to simple systems. [SM]

**442 Advanced Statistical Physics (3)**

Prerequisite: Physics 432 and 441. Many body theory and applications to problems such as turbulence, phase transitions, etc. [SM]

**443 Plasma Physics (3)**

Prerequisite: Physics 441 and 423. Various techniques of Plasma Physics; statistical treatments; magnetohydrodynamics; instabilities; applications to controlled fusion, etc. [SM]

**451 Solid State Theory (3)**

Prerequisite: Physics 351 and 431. Simple crystal lattices; Brillouin zones; bond structures; elementary excitations in solids and their properties; impurities. [SM]

**452 Special Topics in Solid State (3)**

Prerequisite: Physics 451. May be taken for repetitive credit. [SM]

**461 Experimental Nuclear Physics (3)**

Prerequisite: Physics 431 and 335. Nuclear reactions; nuclear radiation detection; basic conservation laws; isospin; phenomenological models. [SM]

**462 Nuclear Theory (3)**

Prerequisite: Physics 461. Study of nuclear models and applications to reactions; shell model; optical model; R-Matrix theory; systematics of nuclear decays. [SM]

**471 Special Topics in Theoretical Physics (3)**

Prerequisites determined. Covers special topics such as relativity, particle physics, non-linear systems, etc. [SM]

**490 Thesis Research**

Includes writing a thesis. Credit will be awarded only upon successful defense of thesis. [SM]

## Political Science

**Prerequisites may be waived by consent of department.**

### Ungrouped Courses

#### 11 Government in Modern Society: American Politics (3) (F, W)

Introduction to basic concepts of government and politics with special reference to the United States, but including comparative material from other systems. Course fulfills the state requirement. [SS]

#### 12 Government in Modern Society: Comparative Politics (3) (F, W)

An introduction to basic political structures and processes with an emphasis on foreign political systems and comparative political analysis. The course will deal with democratic and non-democratic political systems in developed and underdeveloped nations. [SS]

#### 77 Third World Development (3)

(Same as Sociology 77 and Anthropology 77). An interdisciplinary course concerned with the process of development and underdevelopment in the modern world. Focuses upon the internal structures of societies, the effects of foreign policies, and cooperative and coercive international relations as they have affected developing nations. The loss of many valuable aspects of life that has accompanied previous patterns of development will be examined in light of the possibility of alternative strategies. [SS]

#### 90 Freshman Seminar (3)

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students. [SS]

#### 99 The City (3) (F, W)

(Same as AOJ 99, Economics 99, History 99, Psychology 99, and Sociology 99) An interdisciplinary course. Consideration of economic factors, urban institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. Does not count for political science credit. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission. [SS]

#### 295 Internship (1-6) (F, W)

Prerequisite: Junior standing and consent of instructor. Independent study involving work with an appropriate public or private agency. A maximum of 6 credit hours may be earned.

#### 390 Special Readings (1-10) (F, W)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. May be repeated. [SS]

### Group I: Public Law

#### 225 Jurisprudence (3)

Prerequisite: Political Science 11 or 12. Development of law and legal systems, comparison of methods and procedure in making and enforcing law in Roman and common law systems; consideration of fundamental legal concepts; contributions and influence of schools of legal thought in relation to law and government. [SS]

#### 227 Urban Law: Poverty and the Justice System (3)

Prerequisite: Political Science 11 or AOJ 220, or equivalent, or consent of instructor. Examination of administrative regulations and the civil law process as it affects the life of urban residents. [SS]

#### 320 Introduction to American Constitutional Law (3) (F, W)

Prerequisite: Political Science 11. Study of leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court. Course fulfills the state requirement. [SS]

#### 321 Civil Liberties (3)

Prerequisite: Political Science 11. Civil rights in the American constitutional context, emphasizing freedom of religion, freedom of expression, minority discrimination, loyalty, and rights of defendants. [SS]

#### 324 Judicial Behavior (3)

Prerequisite: Political Science 11 or 12. Anthropological, economic, psychological, and social dimensions of judicial behavior; judicial attitudes, voting behavior, and decision-making. [SS]

#### 329 Studies in Public Law (3)

Prerequisite: Political Science 11. Selected topics in constitutional law, administrative law, legal philosophy, history of the Supreme Court, and judicial process. May be repeated. [SS]

### Group II: Political Process

#### 130 State Politics (3)

Prerequisite: Political Science 11. An examination of contemporary state politics in the United States: social, economic, and political determinants of policies; federal-state-local relations; elections, interest groups, and participation; executive, legislative, and judicial institutions; and process, policies and their impact. Course fulfills state requirement. [SS]

**215 The Black American in United States Politics (3)**

The position and political behavior of black Americans in both rural and urban environments, with emphasis on styles of leadership, organization, strategy, and ideology. [SS]

**218 Social Choice in Political Economic Systems (3)**

Same as Economics 218. Prerequisite: Two courses in economics, political science, or sociology. A study of the mechanisms of social choice from the standpoint of individual and political party maximization of personal objectives. This area draws on work done by sociologists, political scientists, and economists. [SS]

**230 The American Presidency (3)**

Prerequisite: Political Science 11. Study of the constitutional, political, legislative, and administrative roles played by the American chief executive in the development of public policy. [SS]

**233 Introduction to Political Behavior (3)**

Prerequisite: Political Science 11. A general introduction to political socialization, political opinion formation, and electoral behavior. [SS]

**234 Political Sociology (3)**

Same as Sociology 234. Prerequisite: Political Science 11, Sociology 10 or 20. The analysis of power as a social phenomenon. The processes of legitimating power and instituting authoritative structures. Stabilizing of social control and social integration at various levels of social and political organization. [SS]

**235 Political Parties (3) (F)**

Prerequisite: Political Science 11. Development, organization, functions, activities of major and minor political parties, pressure groups, elections administration, especially in the United States. Course fulfills the state requirement. [SS]

**331 Legislative Process (3)**

Prerequisite: Political Science 11. Congressional elections, constituent relations, policy making and leadership, relations between Congress and administrative and executive agencies, the committee system, seniority and procedure. Congress as an element in the party system. [SS]

**332 Studies in Political Behavior (3)**

Prerequisite: Political Science 11 or 12. Selected topics such as electoral behavior, political opinion, political socialization, political leadership, political violence, and others. May be repeated. [SS]

**333 Studies in Policy Formation (3)**

Prerequisite: Political Science 11 or 12. Selected topics such as science and public policy, environmental policy, and other domestic policy domains. May be repeated. [SS]

**Group III: Public Administration****140 Public Administration (3)**

Prerequisite: Political Science 11. Survey of public administration, with reference to organization, financial administration, personnel management, judicial control of the administrative process. [SS]

**341 Comparative Public Policy and Administration (3)**

See Group IV Comparative Politics.

**345 Business and Government (3)**

(Same as Economics 355)

Prerequisite: Economics 51. Relations between business firms and government at all levels. Questions of regulation, public ownership guidelines, and competition considered. [SS]

**349 Studies in Public Administration (3) (V)**

Prerequisite: Political Science 11 or 12. Selected topics in administrative organization, personnel management, fiscal control, public policy, and political administrative environments. May be repeated. [SS]

**Group IV: Comparative Politics****251 Comparative Politics of Western Europe (3)**

Prerequisites: Political Science 11 or 12. Introduction to the major political systems of Western Europe. The course will emphasize political culture, political parties, interest groups, and political behavior. It will also focus on political institutions and policy making. While individual countries will be examined separately, the course will also emphasize comparison between systems. [SS]

**253 Political Systems of South America (3)**

The political systems, international problems, and socio-economic-cultural environments of the governmental process of South America. Course fulfills the non-Euro-American requirement. [SS]

**254 Political Systems of Mexico, Central America, and the Caribbean (3)**

The political systems, international problems, and socio-economic-cultural environments of the governmental process in Mexico, Central America, and the Caribbean. Course fulfills non-Euro-American requirement. [SS]

**255 Asian Comparative Politics (3) (F, W)**

Study of the political systems of Asia including China, Japan, India, and Southeast Asia. Course fulfills the non-Euro-American requirement. [SS]

**341 Comparative Public Policy and Administration (3)**

Prerequisite: Political Science 11 or 12. A comparative study of the characteristics of public

administrators, their institutions and environments in Western democratic, developing nations, and Communist political systems. [SS]

**352 The Politics of Modernization (3)**

Prerequisite: Political Science 11 or 12. Analysis of the dimensions and problems of modernization and the role of political systems, with primary emphasis on African nations. Course fulfills the non-Euro-American requirement. [SS]

**353 Soviet Political Systems (3)**

Prerequisite: Political Science 11 or 12. Examination of government and politics in the Soviet Union dealing with themes such as the role of the party, recruitment and socialization of elites, the role of ideology and interest groups, the formulation of policy, bureaucratization of social, economic, and cultural life. [SS]

**359 Studies in Comparative Politics (3)**

Prerequisite: Political Science 11 or 12. Studies of political processes in specific geographic areas and related concepts in comparative analysis. May be repeated. [SS]

**Group V: Theory and Methodology**

**100 Research Methods in Political Science (3)**

Prerequisite: Political Science 11 or 12. Methods of testing casual statements about politics, including research design and data measurement, collection and analysis. [SS]

**160 Contemporary Political Ideologies (3)**

An introduction to the major political ideologies of the world today. Emphasis on communism, democracy, and nationalism. [SS]

**261 History of Political Thought (3)**

Study of political philosophy from Plato to Machiavelli. [SS]

**262 History of Political Thought (3)**

Study of political philosophy from Machiavelli to the present. [SS]

**265 Normative Political Philosophy (3)**

Prerequisite: Political Science 11 or 12. Analysis of the concepts of justice, liberty, equality, power, and authority in political philosophy. Theories of revolution. General consideration of problems in normative political philosophy. [SS]

**269 The Marxist Heritage (3)**

(Same as Philosophy 269) An interdisciplinary study of Marx and leading Marxists, designed to evaluate their influence on recent political, economic, and social thought and institutions. [H] or [SS]

**300 Empirical Political Theory (3)**

Prerequisite: Political Science 11 or 12.

Consideration of the elements of scientific method and social phenomena; critics of the scientific approach in political science, nature and logic and explanatory theories, such as systems theory, structural-functional analysis, and deductive theories. [SS]

**304 Survey Research Practicum (3)**

(Same as Economics 304 and Sociology 304)  
Prerequisite: Junior standing and consent of the instructor. The execution of a sample survey, including establishing study objectives, sampling, questionnaire construction, interviewing, coding, data analysis, and presentation of results. [SS]

**368 Studies in Political Theory (3)**

Prerequisite: Political Science 11 or 12. Selected topics such as American political thought, utopian political thought, and theories of revolution. May be repeated. [SS]

**Group VI: Urban and Regional Politics**

**176 Community Politics (3)**

Examination of the structure and process of politics in the urban community, with emphasis on their relationships to community power structures. Course fulfills the state requirement. [SS]

**375 Urban Planning and Politics (3)**

Prerequisite: Political Science 11. Examination of the political processes of urban areas as they relate to the planning of services and facilities. [SS]

**378 Studies in Urban Politics (3) (V)**

Prerequisite: Political Science 11. Selected topics in urban politics, such as ethnic politics, theories of urban violence, and suburban politics. May be repeated. [SS]

**Group VII: International Relations**

**180 World Politics (3) (V)**

Analysis of politics among nations, including such topics as: nationalism, imperialism and colonialism, revolution and war; arms control and disarmament; and peace and the regulation of conflict. [SS]

**282 United States Foreign Policy (3) (V)**

Prerequisite: Political Science 11 or 12. Examination of the factors influencing the formation and the execution of United States foreign policy and of specific contemporary foreign policies and problems. [SS]

**285 International Institutions and Global Problem-Solving (3)**

Prerequisites: Political Science 11 or 12. An introduction to the study of international organization. The course focuses on relationships between nation-states and "non-state" actors (global



intergovernmental organizations such as the United Nations, regional organizations such as the European Economic Community, and nongovernmental organizations such as multinational corporations) in world politics and on the role of international institutions in such problem-areas as economic development and stability, management of resources, and control of violence across national boundaries. [SS]

**286 Studies of War and Peace (3)**

Prerequisites: Political Science 11 or 12. Exploration, development, and testing of theories about the causes and consequences of war, peace, and conflict among nations. A broad range of literature on war and peace will be reviewed and applied to crisis situations in the international system. [SS]

**381 Foreign Policy Decision-Making (3)**

Prerequisite: Political Science 11 or 12. Empirical and experimental studies of foreign policy decision-making processes. [SS]

**384 European International Relations (3)**

Prerequisite: Political Science 11 or 12. European international relations since World War II. Emphasis upon developments from the Cold War to Detente, emphasizing such concepts as containment, Truman Doctrine, Marshall Plan, NATO, WTO, community building, force structures, and security. [SS]

**385 International Law and Administration (3)**

Prerequisite: Political Science 11 or 12. Study of international legal and administrative machinery and practices including the content and operation of international law, and the procedures whereby international organizations recruit personnel, make decisions, and administer international programs. [SS]

**388 Studies in International Relations (3)**

Prerequisite: Consent of instructor. Regional or functional problems in international relations, e.g., international relations of the Middle East, Western Europe, international coalitions. May be repeated. [SS]

**389 Middle Eastern International Relations (3)**

Prerequisite: Political Science 11 or 12. Analysis of conflict and cooperation among Middle Eastern states, and the role of major powers in the Middle East. Historical and contemporary issues will be discussed, including the Arab-Israeli dispute, conflict among Arab states, oil economics and politics, sources of revolution, and major power competition. [SS]

**400 Approaches to the Study of Public Policy (3)**

A critical review of leading approaches to the study of public policy processes. [SS]

**401 Introduction to Policy Research (3)**

Procedures for testing explanations, including research design, principles of measurement, probability sampling, methods of data collection, and techniques for analyzing data. [SS]

**404 Topics in Public Policy Analysis (3)**

Intensive analysis of a specific public policy area such as housing, budgeting, integration, planning, metropolitan reorganization. Course may be repeated. [SS]

**405 Directed Readings and Research in Research Methods (1-10)**

Independent study through readings, reports, and conferences. [SS]

**409 Cases in Public Policy Analysis (3)**

Intensive analysis of several public policy cases. Cases will be problem-solving exercises in areas such as personnel management, program financing, budget preparation, and planning. [SS]

**410 Foundations of Political Analysis: Part I (3)**

Empirical; theory of knowledge; concepts and measurements; descriptions, forecasts, and explanations. [SS]

**411 Foundations of Political Analysis: Part II (3)**

Normative choice, cost-benefit analysis; relation of empirical and normative inquiry; policies and inventories; systematic social criticism. [SS]

**425 Directed Readings and Research in Public Law (1-10)**

Independent study through readings, reports, and conferences. [SS]

**430 Proseminar in American Politics (3)**

Study of individual and group political behavior including socialization, participation, consensus formation, representation, legislative and judicial behavior. [SS]

**431 Seminar in American Politics (3)**

Research problems and design in American political process and behavior. [SS]

**435 Directed Readings and Research in American Politics (1-10)**

Independent study through readings, reports, and conferences. [SS]

**440 Proseminar in Public Administration (3)**

Public organizations are examined as open social systems. Empirical and normative theories of organizational behavior and development, models of organizational analysis, the relationship of the public organization to its environment, interorganizational and intraorganizational behavior, theories of organizational change, decision theory and

organizational behavior, and the relationships between public and private organizations. [SS]

**441 Seminar in Public Administration (3)**

Study of the basic tools and techniques relevant to decision making and problem solving in public organizations, and the management of public policy. Theories of management and control, systems analysis, decision theory, program development, policy evaluation, management of organizational change, resource allocation and control, constituency analysis, executive-legislative relationships, and the nature of administrative leadership. [SS]

**445 Directed Readings and Research in Public Administration (1-10)**

Independent study through readings, reports, and conferences. [SS]

**450 Proseminar in Comparative Politics (3)**

Classification and typology of political systems: structural-functional analysis; political culture, ideology, affiliation, and participation; decision-making processes; political roles, organization of authority. [SS]

**451 Seminar in Comparative Politics (3)**

Research problems and design in comparative politics. [SS]

**455 Directed Readings and Research in Comparative Politics (1-10)**

Independent study through readings, reports, and conferences. [SS]

**460 Proseminar in Political Theory (3)**

Study of concepts and problems in normative political theory. [SS]

**461 Seminar in Political Theory (3)**

Research problems and design in political theory. [SS]

**465 Directed Readings and Research in Political Theory (1-10)**

Independent study through readings, reports, and conferences. [SS]

**470 Proseminar in Urban Politics (3)**

Examination of the relationship between the social, economic, and political systems of urban areas. Urban political structure, patterns of influence, political participation, and communication and political change. Special attention to problems of access to and control of urban political systems. [SS]

**471 Seminar in Urban Politics (3)**

Research problems and design in urban and regional politics. [SS]

**475 Directed Readings and Research in Urban Politics (1-10)**

Independent study through readings, reports, and conferences. [SS]

**480 Proseminar in International Relations (3)**

Examination of theoretical approaches to and applications of international politics, including "traditional" approaches, "Realpolitik" and the Idealist reaction, capability analysis, general and particular systems analysis, content analysis, decision-making, simulation and gaming. [SS]

**481 Seminar in International Relations (3)**

Research problems and design in international politics. [SS]

**485 Directed Readings and Research in International Relations (1-10)**

Independent study through readings, reports, and conferences. [SS]

**494 Thesis Research (1-10)**

Arranged.

**495 Internship (1-6)**

Independent study involving work with an appropriate public or private agency.

## Psychology

**3 General Psychology (3) (F, W)**

A broad introductory survey of the general principles of human behavior. Psychology 3 may be applied toward fulfillment of the general education requirement in social science. However, it does not satisfy the prerequisite requirements of other courses in psychology at the 200 level or above and should not be taken by majors in psychology. [SS]

**10 Introductory Psychology (4) (F, W)**

A one-semester prerequisite for students intending to major in psychology or take psychology courses at the 200 level or above. The course offers a survey of the facts, principles, and methods in the scientific study of human behavior. [SS]

**45 Race (3)**

(Same as History 45 and Sociology 45) Prerequisite: 12 hours of college course credit. Origins and functions of conceptions of race. Biological and social definitions of race; the function of racial ideologies for societies; social, historical, and psychological bases of racism in the U.S.; the consequences of racism for the individual and societies. (Does not count toward major). [SS]

**75 Crime and Punishment (3)**

(Same as AOJ 75, Psychology 75, Sociology 75, and Anthropology 75) An interdisciplinary course. An introduction to sociological and psychological explanations of crime and punishment. An examination of private and governmental responses to the threats of crime and delinquent behavior. [SS]

**99 The City (3) (F,W)**

(Same as History 99, Political Science 99, Sociology 99, and Economics 99) An interdisciplinary course. Consideration of economic factors, urban institution, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. (Does not count toward major). This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission. [SS]

**101 Psychological Statistics (4) (F, W)**

(with laboratory) Prerequisite: Psychology 10 or equivalent, Mathematics 30 or equivalent. Statistical methods in psychological measurement, and analysis of psychological data. Frequency distribution analysis, sampling, test of significance, correlational methods. [SS]

**105 Group Prejudice and Minority Identity (3)**

(Same as Sociology 105) Prerequisite: Psychology 3 or 10 or Sociology 10. The psychological study of determinants of identity formation and transformation among minority groups. [SS]

**111 Human Motivation (3)**

Prerequisite: 3 hours of psychology. A survey and

comparison of current types of human motivation theory and research, with some consideration of future trends in motivation theory and implications of motivation theory and research to other areas in psychology. [SS]

**112 Principles of Learning (3)**

Prerequisite: Psychology 3 or 10. A consideration of critical findings in learning. [SS]

**114 Physiological Psychology (3)**

Prerequisite: Psychology 3 or 10 or equivalent and Biology 1. A survey of the major areas of physiological psychology with an emphasis on their historical development. [SS]

**145 Abnormal Psychology (3) (F, W)**

Prerequisite: Psychology 3 or 10. Introduction to major symptom complexes, theories of etiology, and treatment of behavior disorders. [SS]

**150 The Psychology of Individual Differences (3) (F)**

Prerequisite: Psychology 3 or 10. Analysis of major dimensions of individual differences in behavior and the roles of genetic constitutional and experiential factors in the development of psychological differences. While emphasis is placed on human behavior, relevant information from infra-human species will be considered. [SS]

**155 Community Psychology (3) (W)**

Prerequisite: Psychology 3 or 10. The analysis of psychological problems in terms of the social and situational forces that produce them. Community psychology analyzes the situational problems in living. Epidemiology of mental illness; group, family, and crisis intervention; mental health care delivery; program evaluation and demonstration project research; role of psychologist as consultant and change agent; utilization of non-professional manpower. [SS]

**156 Environmental Psychology (3) (F)**

Prerequisite: Psychology 3 or 10 and a quantitative or methods course. Analysis of environmental influences on behavior and man's influence, in turn, on the environment. Projects relating to these problems will be required. [SS]

**160 Social Psychology (3) (F, W)**

(Same as Sociology 160) Prerequisite: Psychology 3 or 10 or Sociology 10. Study of interaction between the individual and his social environment. Examination of basic principles, concepts, methods. [SS]

**170 Child Psychology (3) (F, W)**

Prerequisite: Psychology 3 or 10. Principles of biological, behavioral, and personality development from conception to puberty. [SS]

**171 Adolescent Psychology (3) (F, W)**

Prerequisite: Psychology 3 or 10. Principles of biological, behavioral and personality development from puberty to maturity. [SS]

**172 Psychology Maturity and Old Age (3)**

Prerequisite: Psychology 3 or 10. Exploration of the physiological and social development and changes accompanying the mature years of adulthood and later maturity, old age. Theories to explain functioning in these years as well as specific results of studies which help understand changes in all areas of functioning will be included. [SS]

**192 Senior Readings (3)**

Prerequisite: Consent of instructor. Directed readings and research, one product of which shall be a formal paper. [SS]

**193 Senior Seminar (3)**

Prerequisite: Consent of instructor. Directed readings and research, one product of which shall be a formal paper. [SS]

**205 Cognitive Development (3)**

Prerequisite: 6 hours of psychology or permission of instructor. Data and theory concerned with development of perceptual, language, and symbolic abilities in infants and young children, including discussion of deprivation and enrichment of cognitive development. [SS]

**206 Social Development (3)**

Prerequisite: 6 hours of psychology or permission of instructor. Data and theory concerned with development of social behavior in infants and young children. Discussion will include the formation and interruption of attachment, the effects of social isolation, sex role development, identification, and development of moral judgments in children. [SS]

**210 Motivation Theory (3)**

Prerequisite: 9 hours of psychology. Survey of current theoretical material in the area of motivation. [SS]

**214 Physiological Psychology (3)**

(with laboratory) Prerequisite: Psychology 219 and Biology 1 and 3 or consent of instructor. The biological and physiological correlates of behavior. Special emphasis placed on the neural and endocrine system. [SS]

**216 Personality Theory (3)**

Prerequisite: 9 hours of psychology. Structural and dynamic aspects of the human personality considered in the context of selected theoretical systems. [SS]

**218 Industrial Psychology (3)**

(Same as Business Administration 318) Prerequisite:

Psychology 101 or equivalent, or Business Administration 310. Activities of the applied psychologist. Selection and placement, testing and interviewing, personnel research. Morale, motivation, and job satisfaction. Leadership skills and styles; creative management; industrial mental health. Psychology in advertising and marketing. [SS]

**219 General Experimental Psychology (3) (F, W)**

(with laboratory) Prerequisite: Psychology 101. Research methods and analysis techniques used in psychological inquiry. Special emphasis placed on the logic of research design. Includes laboratory study of and analysis of selected methods. [SS]

**225 Behavior Modification (3)**

Prerequisite: 9 hours of psychology or consent of instructor. Methods, applications, and ethics of the use of behavior theory (primarily Skinner's operant conditioning) to the control of human behavior in a variety of settings including mental institutions, grade schools, universities, individual treatment, and communal living. [SS]

**246 Introduction to Clinical Psychology (3) (W)**

Prerequisite: 9 hours of psychology, including Psychology 145 or 216. A conceptual framework for research, description, and understanding of clinical phenomena. Assessment, interviewing, the clinical use of tests, and psychological approaches to treatment. [SS]

**249 Human Learning (3)**

Prerequisite: Psychology 219. Theory and data pertaining to human learning, transfer, short and long-term retention, and forgetting of verbal and non-verbal information. [SS]

**254 Experimental Social Psychology (3)**

(with laboratory) Prerequisite: Psychology 219. Social psychological processes both inside and outside of the laboratory including an emphasis on experimental methods in research. [SS]

**255 Psychology of Perception (3)**

(with laboratory) Prerequisite: Psychology 219. Classical and current problems in psychophysics, sensory physiology, and the developmental and comparative psychology of sensory processes. Includes laboratory study of selected sensory and perceptual phenomena. [SS]

**256 Cognitive Processes (3)**

Prerequisite: 9 hours of psychology. Evolution of contemporary approaches to the higher mental functions. Analyses of some of the psychological processes involved in association, memory, meaning, language, and conceptual behavior. [SS]

**257 Psychology of Learning (3)**

(with laboratory) Prerequisite: Psychology 219. Major

theoretical positions and experimental conditions of learning. Includes laboratory study of selected problems. [SS]

**260 Attitude Structure and Change (3)**

Prerequisite: Psychology 101 or equivalent, plus 6 hours in either psychology or sociology. Theories of attitude structure and attitude change; measurement; current research. [SS]

**261 History and Systems of Psychology (3) (F)**

Prerequisite: 12 hours of psychology. Historical antecedents of contemporary scientific psychology, including a survey of systems and schools of psychology. [SS]

**265 Psychological Tests and Measurements (3)**

(with laboratory) Prerequisite: Psychology 101; Psychology 219 or consent of instructor. Survey of psychological testing and principles of test construction and evaluation. Laboratory experience in construction, administration, and interpretation of selected tests. [SS]

**290 Psychology Readings (3) (V)**

Prerequisite: Psychology 3 or 10 and consent of instructor. Readings on a topic mutually acceptable to student and instructor. [SS]

**301 Advanced Statistics and Experimental Design (3)**

Prerequisite: 12 hours of psychology, including Psychology 101. Statistical methods particularly useful in psychological research and the design of experiments appropriate to these methods. [SS]

**350 Special Readings (1-10)**

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. [SS]

**401 Proseminar: General Psychology I (4)**

A comprehensive survey of the major areas in psychology. [SS]

**402 Proseminar: General Psychology II (4)**

A continuation of Psychology 401. [SS]

**403 Proseminar: Psychopathology (3)**

A critical examination of the clinical-experimental literature on personality disorders. [SS]

**404 Proseminar: Introduction to Clinical Assessment (3)**

Fundamentals of clinical assessment with emphasis on interviewing and the measurement of cognitive functioning. [SS]

**405 Proseminar: Personality (3)**

Current theories and research in personality with emphasis on normal behavior. [SS]

**406 Proseminar: Personality Assessment I (2)**

Theory and techniques of personality assessment with emphasis on projective personality tests. [SS]

**407 Proseminar: Personality Assessment II (2)**

A continuation of Psychology 406. [SS]

**411 Proseminar: Learning and Cognitive Processes (3)**

Evolution of contemporary approaches to learning, both animal and human, and the higher cognitive processes. [SS]

**412 Proseminar: Social Psychology (3)**

A review of key areas in contemporary theory and research in social psychology. [SS]

**413 Proseminar: Developmental Psychology (3)**

Analysis of theories and empirical findings of human and infrahuman studies as related to development. [SS]

**414 Proseminar: Perception (3)**

Sensory processes, psychophysics, and theories of perception. [SS]

**415 Proseminar: Physiological and Comparative Psychology (3)**

Analysis and review of specific physiological and behavioral processes common to a wide variety of animals. [SS]

**416 Proseminar: Animal Behavior and Genetics (3)**

Analysis of the major theoretical positions and empirical findings concerning vertebrate and invertebrate forms. [SS]

**421 Quantitative Methods I (3)**

A comprehensive study of statistical principles. [SS]

**422 Quantitative Methods II (3)**

A continuation of Psychology 421. [SS]

**423 Psychological Scaling (3)**

Theory of measurement and the principal methods of psychological scaling. [SS]

**424 Factor Analysis (3)**

Principal factor analytic methods and multivariate procedures. [SS]

**425 Mathematical Models (3)**

Decision theory and mathematical models used in the behavioral sciences. [SS]

**426 Computer Programming (3)**

Fundamentals of digital computer programming and computer applications in the behavioral sciences. [SS]

**431 Practicum: Introduction to Clinical Assessment (2)**

Supervised experience in interviewing and the assessment of cognitive functioning. [SS]

**432 Clinical Practice I (3)**

Prerequisite: Consent of instructor. Placement in affiliated institution, agency, or organization under supervision of staff.

**433 Clinical Practice II (1-10)**

Prerequisite: Psychology 432 and consent of adviser. Placement in affiliated institution, agency or organization under supervision of staff.

**434 Practicum: Specialized Techniques in Psychological Intervention (1-10)**

Supervised clinical training in specialized therapeutic techniques.

**441 Seminar: Personality and Behavior Change I (2)**

Examination of major approaches and principles involved in personality change and behavior modification. [SS]

**442 Seminar: Personality and Behavior Change II (2)**

A continuation of Psychology 441. [SS]

**443 Seminar: Problems in Psychopathology (3)**

Critical examination of current theoretical, methodological, and empirical problems in abnormal behavior. [SS]

**444 Seminar: Problems in Personality (3)**

Critical examination of current empirical and theoretical issues in personality theory and research. [SS]

**445 Seminar: Community Psychology (3)**

Critical examination of principles and application of preventive intervention in social systems and community mental health programming. [SS]

**450 Clinical Internship I (1-10)**

Prerequisite: Consent of adviser. Supervised training in affiliated agency or organization following completion of two years of course work. [SS]

**451 Clinical Internship II (1-10)**

Prerequisite: Psychology 450 and consent of adviser. Supervised training in affiliated agency or organization following completion of two years of course work.

**461 Seminar: Learning (3)**

A critical examination of contemporary problems in learning. [SS]

**462 Seminar: Motivation (3)**

A critical examination of contemporary problems in motivation. [SS]

**463 Seminar: Social Psychology (3)**

A critical examination of contemporary problems in social psychology. [SS]

**464 Seminar: Perception (3)**

A critical examination of contemporary problems in perception. [SS]

**465 Seminar: Physiological Psychology (3)**

A critical examination of contemporary problems in physiological psychology. [SS]

**466 Seminar: Developmental Psychology (3)**

A critical examination of contemporary problems in developmental psychology. [SS]

**467 Seminar: Conceptual Systems (3)**

A critical examination of the evolution of contemporary theory in psychology. [SS]

**468 Seminar: Cognitive Processes (3)**

A critical examination of contemporary problems in cognitive processes. [SS]

**469 Seminar: Animal Behavior (3)**

A critical examination of contemporary problems in animal behavior. [SS]

**470 Seminar: Behavior Genetics (2)**

A critical examination of contemporary problems in behavior genetics. [SS]

**471 Seminar: Comparative Psychology (3)**

A critical examination of contemporary problems in comparative psychology. [SS]

**481 Principles of Scientific Inquiry (3)**

Problems in the logic of inquiry and understanding in science. [SS]

**482 Ethics for Psychologists (1)**

A study of ethical standards as they relate to teaching, research, and professional practice. [SS]

**483 Directed Research (1-10)****484 Directed Readings (1-10)****491 M.A. Thesis Research (1-10)****492 Ph.D. Thesis Research (1-10)**

## Sociology and Anthropology

## Sociology

**10 Introduction to Sociology (3)**

Prerequisite: None. Sociology as an approach to social phenomena. Lecture and laboratory discussion format used for presentation of classic and contemporary models of social structure and processes. [SS]

**30 Interpretation of Sociological Data (3) (F, W)**

Prerequisite: Sociology 10. An introduction to the understanding of sociological research. Emphasis will be placed on how research is conducted and on how to read and interpret data analysis. This will be done in a non-technical fashion. Sociology majors cannot receive sociology credit for this course. [SS]

**45 Race (3)**

(Same as Psychology 45, History 45, and Anthropology 45). Prerequisite: 12 hours of college course credit. Origins and functions of conceptions of race. Biological and social definitions of race; the function of racial ideologies for societies; social, historical, and psychological bases of racism in the United States; the consequences of racism for the individual and societies. [SS]

**65 The University (3)**

See Interdisciplinary 65. [SS]

**75 Crime and Punishment (3) (W)**

(Same as AOJ 75, Psychology 75, Sociology 75, and Anthropology 75) An introduction to sociological and psychological explanations of crime and punishment. An examination of private and governmental responses to the threats of crime and delinquent behavior. [SS]

**77 Third World Development (3)**

(Same as Political Science 77, Anthropology 77) An interdisciplinary course concerned with the process of development and underdevelopment in the modern world. We will focus upon the internal structures of societies, the effects of foreign policies, and cooperative and coercive international relations as they have affected developing nations. The loss of many valuable aspects of life that has accompanied previous patterns of development will be examined in light of the possibility of alternative strategies. [SS]

**90 Freshman Seminar (3)**

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students. [SS]

**99 The City (3)**

(Same as AOJ 99, History 99, Political Science 99, and Economics 99) An interdisciplinary course. Consideration of economic factors, urban

institutions, historical developments in urbanization, problems of the inner city, suburbia and the metropolitan area, ethnic groups, stratification, and psychological implications of urban living. This course is primarily for freshmen and sophomores. It is open to juniors and seniors with the instructor's permission. [SS]

**105 Group Prejudice and Minority Identity (3)**

(Same as Psychology 105) Prerequisite: Psychology 3 or Psychology 10, or Sociology 10. The psychological and sociological study of determinants of identity formation and transformation among minority groups. [SS]

**106 Development of Social Thought (3) (F)**

Prerequisite: Sociology 10. The antecedents of sociological theory, as traced through social thought traditions until the time of Comte. [SS]

**110 Sociological Theory (3) (F, W)**

Prerequisite: Sociology 10. The nature of sociological theory. An investigation of theory from Comte through contemporary developments. Contributions made by theorists in related disciplines. [SS]

**120 Quantitative Techniques in Sociology (4) (F, W)**

Prerequisite: Sociology 10 and satisfaction of math proficiency requirement. Issues and techniques of statistical analyses, e.g., probability theory, measurements of central tendency and dispersion, techniques of statistical inference, hypothesis testing, chi square test, F-ratio correlation and multiple regression analyses, non-parametric statistics (with laboratory). [SS]

**130 Research Methods (4) (F, W)**

Prerequisite: Sociology 10 and 120 or 30. Research planning; the collection, analysis and presentation of data. Course includes practical experience in the conduct of a research project. [SS]

**160 Social Psychology (3) (F, W)**

(Same as Psychology 160) Prerequisite: Sociology 10 or Psychology 10. Study of the interaction between the individual and his social environment. Examination of basic principles, concepts, methods. [SS]

Note: Any 200-level courses taken for *major* elective credit requires prior completion of a 100 level course. If the 100 level course is 110, 120, or 130 it may be taken concurrently with a 200-level course.

**200 Sociology of Deviant Behavior (3) (F, W)**

Prerequisite: 3 hours of sociology or anthropology. Theories of the nature, causes, and control of deviance as a generic phenomenon. Application of theories to specific types, such as mental disorder, delinquency, drug abuse, suicide, and unconventional sexual behavior. [SS]

**202 Urban Sociology (3) (F, W)**

Prerequisite: Sociology 10 or consent of instructor. Urbanization as a world phenomenon; ecological, demographic, and social structural approaches to the urban community. [SS]

**214 Juvenile Delinquency and Youth Crimes (3) (F, W)**

Prerequisite: 3 hours of 100-level sociology. A theoretical and research-oriented approach to delinquency and youth crime, including types, trends, causation, correction, and prevention. [SS]

**218 Social Choice in Political-Economic Systems (3)**

(Same as Economics 218, Political Science 218)  
Prerequisite: 2 courses in economics, political science, or sociology. A study of the mechanisms of social choice from the standpoint of individual and political party maximization of personal objectives. This area draws on work done by sociologists, political scientists, and economists. [SS]

**224 Sociology of the Family (3) (F, W)**

Prerequisite: Sociology 10. Universal and variable aspects of family organization, family role systems, changes in family social structure. [SS]

**234 Political Sociology (3)**

(Same as Political Science 234) Prerequisite: Sociology 10 or Political Science 11. The analysis of power as a social phenomenon. The processes of legitimizing power and instituting authoritative structures. Stabilizing of social control and social integration at various levels of social and political organization. [SS]

**238 Medical Sociology (3)**

Prerequisite: Sociology 10. The application of sociology to the field of health. Social elements of the etiology of disease and its distribution. The sick role, doctor-patient relationships, and the social organization of hospitals and medical careers. [SS]

**256 Sociology of Education (3) (F)**

Prerequisite: Sociology 10. Education as a social institution, its role as an agent of socialization, and its effect upon the processes of social change and social mobility. The relationship between the school and its community. [SS]

**260 Social Interaction in Small Groups (3) (F)**

Prerequisite: Sociology 160 or Psychology 160. Analysis of human interaction with emphases on group problem solving, group structure, and group process. [SS]

**264 The Sociology of Religion (3)**

Prerequisite: Sociology 10. Religion as a universal phenomenon. The effect of religion upon the individual and society. The organization of religious enterprises. [SS]

**270 Sociology of Socialization (3) (W)**

Prerequisite: Sociology 10. Analysis of the structural and social psychological aspects of roles and the self as a product of social interaction. [SS]

**278 Sociology of Law (3) (W)**

Prerequisite: Sociology 10. A study of law and society with emphasis on the sociological analysis of specific problems of legal doctrines and legal institutions. The law is examined as an instrument of social control through study of the courts, the legal profession, the police, and various social institutions. Consideration is given to law as an instrument of social change. [SS]

**286 The Sociology of Art and Literature (3) (W)**

Prerequisite: Sociology 10. The creative individual, his work, and his public. Social pressures and rewards. [SS]

**290a, 290b, 290c Undergraduate Seminar in Sociological Issues (3)**

Prerequisite: Sociology 10 and consent of instructor. Consideration of an issue or area of the instructor's choice, not already covered by other undergraduate courses. May be taken up to three times for 9 hours credit, provided the subject matter is different each time the seminar is taken. [SS]

**298 Practicum in Field and Laboratory Research (1-3)**

Prerequisite: Sociology 130. Intensive field or laboratory research to be taken subsequent to or concurrent with a specific substantive course. May be taken twice for credit. [SS]

**Note**

Any 300 level course taken for major elective credit requires prior completion of two of the following: Sociology 110, 120, or 130.

**304 Survey Research Practicum (3) (W)**

(Same as Economics 304 and Political Science 304.) Prerequisite: Junior standing and consent of instructor. The execution of a sample survey, including establishing study objectives, sampling, questionnaire construction, interviewing, coding, data analysis, and presentation of results. [SS]

**312 Social Stratification (3) (F)**

Prerequisite: Sociology 10; junior standing or consent of instructor. Theories of social stratification and an examination of current research. Changes in the occupational and hierarchical structure of contemporary society. [SS]

**314 Social Change (3) (F)**

Prerequisite: Sociology 10; junior standing or consent of instructor. The relationship between structural changes and alterations in culture. The individual, the group, and the collectivity as agents of change. [SS]



**316 Ideology and Social Movements (3) (W)**

Prerequisite: Either Social Work 220 or Sociology 234 or 314. Effect of events and social processes on thought and action in the twentieth century. Social functions of ideologies as expressed in movements and formal and informal organizations seeking social change. [SS]

**326 Criminology (3) (F, W)**

Prerequisite: Sociology 200, 214, or 6 hours of sociology or anthropology. Crime as a social phenomenon. Theory and research concerning the causes of crime. [SS]

**327 Fieldwork in Anthropology (3)**

(Same as Anthropology 327) Prerequisite: 9 hours of anthropology or sociology, or consent of instructor. An introduction to anthropological fieldwork in complex societies emphasizing participant observation, interviewing, and use of key informants. Attention will be given to theoretical considerations and problems of method as well as to the application of these techniques in actual fieldwork. Current issues in the ethics of field research and action anthropology will be discussed. [SS]

**328 Institutions and the Control of Crime and Delinquency (3) (F)**

Prerequisite: Sociology 214 or 326. Institutional responses to crime and delinquency. Theories and programs of rehabilitation and punishment. Organizational conditions affecting behavior of correctional personnel. [SS]

**330 Field Research in Criminology (2-4)**

Prerequisite: Sociology 130 and 214 or 326 or their equivalent. Student will participate in individual or group research projects involving systematic data collection and sociological analysis concerning the causation or societal reaction to crime, delinquency or related forms of deviance. One option available to students will be an opportunity to study organizations dealing with juvenile or adult offenders. [SS]

**336 Complex Organizations (3) (F)**

Prerequisite: Sociology 10; junior standing or consent of instructor. The structural characteristics of complex organizations and the informal substructures that evolve within. Rational and natural-system models. Pressures toward equilibrium and change. [SS]

**342 Demography (3) (F)**

Prerequisite: Sociology 10; junior standing or consent of instructor. Sociological aspects of theories relating man and ecological environment. Selected topics including fertility and population change, community planning and urbanism, and demographic aspects of Western and non-Western cultures. [SS]

**344 Problems of Urban Community (3) (W)**

Prerequisite: Sociology 10; junior standing or consent of instructor. The urban community as an area of social action and problem-solving with emphasis on the sociological aspects of urban problems. [SS]

**346 Demographic Techniques (3) (W)**

Prerequisite: Sociology 120 or equivalent. This course is designed to familiarize students with the research techniques used in population analysis. Topics included are: appraisal of census and vital data; measurement of mortality, fertility, and migration standardization; construction of life tables; and population projection. [SS]

**350 Special Study (1-10)**

Prerequisite: Consent of instructor. Independent study through readings, reports, and field work. [SS]

**352 Advanced Principles of Sociology (3)**

Prerequisite: Sociology 10; junior standing or consent of instructor. Analysis of the main concepts and principles of sociology and survey of sociology as a social science. [SS]

**354 Occupations and Their Work Settings (3)**

Prerequisite: Sociology 10; junior standing or consent of instructor. The social nature of work; the work plant as a social system; occupational role behaviors, including deviant occupations; the socialization of the worker; determinants of occupational behavior in American and other societies; social problems of work; the impact of the community on work behavior. [SS]

**360 Sociology of Minority Groups (3) (W)**

Prerequisite: Sociology 10; junior standing or consent of instructor. The study of dominant-subordinate group relations. Religion, ethnicity, and race as factors affecting conflict, competition, accommodation, and assimilation. [SS]

**377 Personality and Culture (3)**

Prerequisite: Sociology 10; junior standing or consent of instructor. Analysis of behavior from the standpoint of interaction between psychological systems, sociological systems, and cultural systems. [SS]

**378a 378b Selected Topics in Social Psychology (3) (W)**

Prerequisite: Sociology 160 or Psychology 160 and consent of instructor. Focused examination of selected issues, concepts, and methods in the study of social interaction. May be taken twice for credit. [SS]

**394 Methods in Theory Construction (3) (W)**

Prerequisite: Sociology 110 or consent of instructor.

An in-depth comparison of selected techniques of theory building and testing. Verbal and/or mathematical formalization of selected sociological examples of theory will be the central activity. [SS]

**422 Advanced Quantitative Techniques (3)**  
Prerequisite: Sociology 120 or consent of instructor. A study of advanced quantitative analysis of sociological data, focusing on problems of multivariate analysis, sampling theory and techniques, and the use of electronic data processing in approaching these problems. [SS]

**424 Research Practicum (3)**  
Prerequisite: Sociology 422 and 432 and consent of instructor. Involvement of students in an individual or group project culminating in a report, in order to provide first-hand experience in integration of theoretical concerns, methodological principles, and appropriate research techniques in an empirical study, the subject of which shall be determined in collaboration with the instructor. [SS]

**432 Advanced Methodology (3)**  
Prerequisite: Sociology 130 or consent of instructor. A study of methodological problems on an advanced level, focusing on contemporary issues in the processes of inquiry with particular emphasis on the applicability of different modes of research to various types of theoretical problems. Consideration of ethical problems in social research. [SS]

**440 Seminar in Urban Sociology (3)**  
Prerequisite: 9 hours of undergraduate course work in sociology and consent of instructor. [SS]

**450 Seminar in Social Psychology (3)**  
Prerequisite: 9 hours of undergraduate course work in sociology and consent of instructor. [SS]

**460 Seminar in Deviant Behavior (3)**  
Prerequisite: 9 hours of undergraduate course work in sociology and consent of instructor. [SS]

**462 Sociology of Criminal Law (3)**  
Prerequisite: 12 hours of undergraduate course work in sociology and consent of instructor. A survey of research on the formulation, enforcement, and administration of criminal law. [SS]

**470a, 470b, 470c, Seminar in Sociological Issues (3)**  
Prerequisite: 9 hours of undergraduate course work in sociology and consent of instructor. Consideration of an issue or area of the instructor's choice, not already covered by one of the other 400-level courses. May be taken up to three times for up to 9 hours credit, provided the subject matter is different each time the seminar is taken by the student. [SS]

**475 Introduction to Evaluation Research Methods (3)**  
Prerequisite: Sociology 130 and consent of

instructor. A comparative study of research strategies in design, data sources, data collection techniques, and modes of analysis with application to social deviance action program evaluation. Attention given to both observational and sample survey methodologies. Concurrent with on-site participant observation. [SS]

**476 Research Practicum in Evaluation Research Methods (3)**  
Prerequisite: Sociology 475 and consent of instructor. Instruction in, and supervision of research design and data collection for evaluation of social deviance action program research report. Concurrent with on-site participant observation. [SS]

**480 Individual Study (3)**  
Prerequisite: Consent of adviser and instructor. Designed to give the student the opportunity to pursue particular interests within the discipline and/or to study areas not currently covered by formal courses. Guided by faculty with appropriate interests. May be taken only twice. [SS]

**490 Supervised Research (1-10)**  
Prerequisite: Sociology 322, 332, and 392 and consent of instructor. Individual supervision of research leading to the preparation of a thesis, research paper, or publishable article, in which the student demonstrates skills in the discipline of sociology. [SS]

**492 Advanced Sociological Theory (3) (F)**  
Prerequisite: Sociology 110 or consent of instructor. Recent and current developments in sociological theory in light of its tradition and methodological issues. The state of modern theory with regard to specific conceptual, substantive, and methodological concerns. [SS]

#### Social Work

**100 Introduction to Social Service (3) (F, W)**  
Prerequisite: Sociology 10 or Psychology 10. An examination of the network of social programs and services presently operating in modern urban communities, and the various roles and functions performed by the helping professions. Students will be introduced to basic values, skills, and training involved in a helping relationship as well as the characteristics of both clients seeking help and of professionals and paraprofessionals engaged in the helping process. [SS]

**200 Social Welfare as a Social Institution (4) (F, W)**  
Prerequisite: Social Work 100 or consent of instructor. A study of the development of social welfare services and the social work profession, including major policy alternatives and the philosophy and the ethics underlying present practices and systems. Current issues will be seen in

the light of long term trends, such as the selection of target groups, sponsorship or financing, manpower needs, and the relationships with other social institutions. A laboratory period will be used for field trips to social agencies. [SS]

**210 Interventive Strategies in Social Work with Individuals and Small Groups (3) (F)**

Prerequisite: Social Work 200 and Sociology 160 or Psychology 160. A presentation of basic knowledge, skills, and theories used in social work practice, such as problem identification, interviewing, crisis intervention, milieu therapy, ego support, teaching of interpersonal skills, group therapy, use of community resources, and evaluation of progress. Socio-cultural factors affecting the delivery of services and the various helping roles a social worker might assume will be identified and illustrated by role play and demonstrations by experienced social workers. [SS]

**220 Social Issues and Community Organization (3) (F, W)**

Prerequisite: Social Work 200 and Sociology 160 or Psychology 160. The identification of public issues in relation to society as a whole with a consideration of alternatives for stimulating wide participation in community planning and social action to solve such problems. Methods of inducing citizen efforts to assure that human needs are met will be appraised.

**300a, 300b Interventive Strategies in Social Work Practice with Vulnerable Populations (3) (W)**

Prerequisite: Social Work 210 or 220. An advanced course in social work methods which considers how social work skills may be applied in work with specific client groupings. During one semester, emphasis will be placed on groups with situational and developmental problems such as the physically ill and handicapped, the unemployed, the aging, dependent children, school drop-outs, single person families. In the next semester treatment of persons with markedly deviant behavior will be considered such as adult and juvenile offenders, the mentally ill, child abusers, alcoholics, children with school phobias. (Credit may be given for both a and b.) [SS]

**320a Practicum in Supervised Field Experience and Operational Research (4)**

Prerequisite: 300a or 300b, either of which may be taken concurrently with 320a. Participation as a staff worker in the service programs at an agency selected by the student from a wide variety of approved settings. Students work two days per week with a biweekly seminar. [SS]

**320b Practicum in Supervised Field Experience and Operational Research (4)**

Prerequisite: Social Work 320a. Continuation of 320a. Students may work in the same or in a different agency. In the biweekly seminar, practice and administrative theory is emphasized. With the

instructor's permission, both sections of this course might be taken together in a "block" placement four days per week in one agency in one semester. [SS]

**350 Special Study (Credit arranged).**

Prerequisite: Consent of instructor. Independent study through advanced readings in method and philosophy on a topic of particular interest, or field research in an agency. [SS]

**390 Seminar in Social Work Issues (3) (F, W)**

Prerequisite: Consent of instructor. Current and future policy considerations in designing and implementing social work service delivery arrangements. Issues will be selected according to the interests of the class. [SS]

**Anthropology**

**5 Human Origins (4) (F, W)**

(with laboratory) A survey of the field of physical anthropology with emphasis upon the development of man as an animal. Will consider the genetic forces of evolution, fossil men, race formation, and the origin of culture from a scientific point of view. [SS]

**11 Man, Culture, and Society (3) (F, W)**

A survey of types of societies—bands, tribes, chiefdoms, states, and peasantry—and of selected aspects of culture and social structure. Introduction to linguistics, social, and cultural anthropology as scientific disciplines. [SS]

**45 Race (3)**

Prerequisite: 12 hours of college course credit. Origins and functions of conceptions of race. Biological and social definitions of race; the function of racial ideologies for societies; social, historical, and psychological bases of racism in the United States; the consequences of racism for the individual and societies. [SS]

**51 Introduction to Anthropological Linguistics (3)**

Relation between man and language in synchronic and historical perspective. The design features of language. Equality, diversity, and relativity in structures and functions of language, including non-Western languages. [SS]

**75 Crime and Punishment (3)**

(Same as AOJ 75, Psychology 75, and Sociology 75) An interdisciplinary course. An introduction to sociological and psychological explanations of crime and punishment. An examination of private and governmental responses to the threats of crime and delinquent behavior. [SS]

**77 Third World Development (3)**

(Same as Political Science 77, Sociology 77) An interdisciplinary course concerned with the process of development and underdevelopment in the

modern world. We will focus upon the internal structures of societies, the effects of foreign policies, and cooperative and coercive international relations as they have affected developing nations. The loss of many valuable aspects of life that has accompanied previous patterns of development will be examined in light of the possibility of alternative strategies. [SS]

**90 Freshman Seminar (3)**

Prerequisite: Freshman standing and consent of instructor. Topics to be announced. Weekly seminars supplemented by individual conferences. Limited to twelve students. [SS]

**201 Cultures of Middle America (3)**

Prerequisite: Anthropology 11 or consent of the instructor. An introduction to Mexico and Central America from an anthropological point of view. The evolution of the indigenous civilizations of the Aztec and Maya. The conquest and colonial experiences and the development of modern communities. [SS]

**203 Cultures of South Asia (3)**

Prerequisite: Anthropology 11 or consent of the instructor. A survey of the cultures of South Asia including the prehistory of the area, the ethnographic and linguistic groupings, and the social organization and cultural systems of these groups. This course satisfies the non-Euro-American requirement. [SS]

**205 Cultures of Southeast Asia (3)**

Prerequisite: Anthropology 11 or consent of the instructor. A survey of the cultures of Southeast Asia including the prehistory of the area, the ethnographic and linguistic groupings, and the social organization and cultural systems of these groups. This course satisfies the non-Euro-American requirement. [SS]

**207 Cultures of Native North America (3) (F)**

Prerequisite: Anthropology 11 or consent of the instructor. A survey of the aboriginal cultures of North America including prehistory of the area, the ethnographic and linguistic groupings, and the social organization and cultural systems of these groups. [SS]

**209 The Inca, Aztec, and Maya (3)**

Prerequisite: Anthropology 11 or the consent of the instructor. A survey of the cultural evolution of Mesoamerica and South America, from the early hunters to the florescence of the indigenous civilizations. The course will focus upon an analysis of the high civilizations up to and including the conquest. [SS]

**227 Urban Anthropology (3) (W)**

Prerequisite: Anthropology 11. A comparative analysis of the cultural roles of urban centers and the processes of urbanization in non-Western and Western societies, past and present. A consideration

of urban influences on rural America and the traditional peasant and primitive peoples of Africa, Asia, and Latin America. [SS]

**243 Economic Anthropology (3)**

Prerequisite: Anthropology 11 or consent of instructor. An introduction to the range of economic organizations found in the world. Anthropological models of production and exchange. The notion of "rationality" as applied to non-Western economic systems. The contribution of anthropology to the understanding of economic development. [SS]

**245 Political Anthropology (3)**

Prerequisite: Anthropology 11 or consent of instructor. A review of the pertinent literature on the political process in native and non-Western societies with emphasis upon local-level politics in traditional-modern interface of emerging nations. [SS]

**253 Contrastive Analysis (3)**

Prerequisite: Anthropology 51 or consent of instructor. Examination of two models—structural linguistics and transformational grammar—for the purpose of formulating a contrastive grammar of a Western and non-Western language. [SS]

**265 Religion, Magic, and Science (3)**

Prerequisite: Anthropology 11 or consent of the instructor. A survey of supernatural elements of cultural systems and the place of religion in human societies with emphasis upon non-Western, traditional societies. [SS]

**277 The Mind of Man: Culture and Cognition (3) (F)**

Prerequisite: Anthropology 11 or consent of instructor. An introduction to psychological anthropology focusing on cultural influences on cognition and perception. Theories of "primitive mind" will be reviewed in historical perspective, and cross-cultural research in perception, learning, and cognition considered. Recent studies of sociocultural systems and cognitive styles will be examined and their implications for education explored. [SS]

**291 Senior Seminar**

Prerequisite: Anthropology 381 and senior standing. A continuing investigation of the problems anthropologists choose to explain, the ways they go about explaining these issues, and the procedures used to examine anthropological explanations. [SS]

**325 Comparative Social Organization (3) (F)**

Prerequisite: Anthropology 11 or consent of instructor. The range and variation of societal organization primarily in non-Western cultures. Processes of system maintenance and change. [SS]

**327 Fieldwork in Anthropology (3) (W)**

Prerequisite: 9 hours of anthropology or sociology or

consent of instructor. An introduction to anthropological fieldwork in complex societies emphasizing participant observation, interviewing, and use of key-informants. Attention will be given to theoretical considerations and problems of method as well as to the application of these techniques in actual field-work. Current issues in the ethics of field research and action anthropology will be discussed. [SS]

**335 Culture Change (3) (F)**

Prerequisite: Anthropology 11 or consent of instructor. An intensive investigation into the elements and processes of culture change with regard to specific theories of culture change. The course examines the relationship between microchange in primitive and modern complex societies. [SS]

**337 Applied Anthropology (3) (W)**

Prerequisite: Anthropology 335 or 381. A description and analysis of the methods, principles, and use of anthropology in solution of practical problems associated with the changing conditions of our times. The course will examine a wide variety of cross-cultural case studies. [SS]

**345 Language and Culture (3) (F)**

Prerequisite: Anthropology 11 or consent of the instructor. The relationship between language and culture. Works of Sapir, Whorf, Lee, and others will be considered. [SS]

**350 Special Study (1-10)**

Prerequisite: Consent of the instructor. Independent study through readings, reports, or field research. [SS]

**377 Culture and Personality (3) (W)**

Prerequisite: Sociology 10 or Anthropology 11, or 3 hours in psychology and junior standing, or consent of instructor. Analysis of behavior from the standpoint of interaction between psychological systems, sociological systems, and cultural systems. [SS]

**381 Theories of Anthropology (3) (F)**

Prerequisite: Anthropology 11 or consent of instructor. An introduction to the various developments in theoretical anthropology through a reading of source material. [SS]

**391 Current Issues in Anthropology (1-4) (F, W)**

Prerequisite: Anthropology 11 or consent of instructor. Selected topics in social, cultural, and physical anthropology, with emphasis on current issues and trends in the field of anthropology. May be repeated. [SS]

### Aerospace Studies

#### AS 101 Leadership Laboratory (2)

Instruction is conducted within the framework of an organized cadet corps with a progression of experiences designed to develop each student's leadership potential. Course work includes a study of Air Force customs and courtesies, drill and ceremonies, career opportunities in the Air Force, and the life and work of an Air Force junior officer. Students develop their leadership potential in a practical, supervised laboratory, which typically includes field trips to Air Force installations throughout the United States. Two laboratory hours per week.

#### AS 102 The Air Force Today (2)

This course examines the role of the Air Force in the contemporary world by studying the total structure, strategic offensive and defensive forces, general purpose forces, and aerospace support forces. Two classroom hours per week.

#### AS 103 Leadership Laboratory (2)

Continuation of AS 101. Emphasis shifts from performance of basic activities to giving commands, instruction, and inspection. Two laboratory hours per week.

#### AS 104 The Development of Air Power (2)

A study of the history of air power from balloons and dirigibles through World War I, World War II, Korea, Vietnam, and the peaceful employment of United States air power in relief missions.

#### AS 201 National Security Forces in Contemporary American Society (3)

This course focuses on the Armed Forces as an integral element of society, with an emphasis on the broad range of American civil-military relations and the environmental context in which U. S. defense policy is formulated and implemented. Special themes include societal attitudes toward the military leader-manager in a democratic society, and the fundamental values and socialization processes associated with the Armed Services. Students will be expected to prepare individual and group oral and written reports. Classroom activity, three hours per week; leadership laboratory, one hour per week.

#### AS 202 National Security Forces in Contemporary American Society (3)

Continuation of AS 201. Special themes include the requisites for maintaining adequate national security forces; political, economic, and social constraints on the national defense structure; the impact of technological and international developments on strategic preparedness; and the manifold variables involved in the formulation and implementation of national security policy. Classroom activity, three hours per week; leadership laboratory, one hour per week.

#### AS 203 Air Force Leadership (3)

This course examines the process of influencing people, individually and in groups, to effectively accomplish organizational missions. The motivational and behavioral processes, communication and group dynamics are covered to provide a foundation for the development of the professional skills of a junior officer. Students study a variety of challenges and effective styles of military and civilian leadership. Classroom activity, three hours per week; leadership laboratory, one hour per week.

#### AS 204 Air Force Management (3)

An integrated management course emphasizing the individual as a manager in an Air Force milieu. The basic managerial processes involving decision-making and utilization of analytic aids in planning, organizing, and controlling are emphasized as necessary professional concepts. Organizational and personal values, management of forces in a variable environment, organizational power and politics, managerial strategy and tactics, military justice, and administrative law are discussed within the context of the military organization. Actual Air Force cases are used to enhance the learning and communication processes. Classroom activity, three hours per week; leadership laboratory, one hour per week.

#### AS 298 Special Topics in Aerospace Studies (0)

##### Military Science

Prerequisites may be waived by consent of professor of military science. Course credit is for two semesters or one full year enrollment in the course.

#### MS 101-102 Introduction to Military Science (2)

Acquaints the student with the ROTC program and the career opportunities afforded ROTC graduates; provides a knowledge of the customs and traditions of the military service; familiarizes the student with the service weapon; develops a basic understanding of the organization and management of the United States Army and the Army's place in the world affairs. One and one-half class hours per week.

#### MS 210-202 Applied Military Leadership and Management (2)

Prerequisite: MS 101-102 or equivalent. Surveys American military history from colonial times to the present, emphasizing the central importance of leadership in the growth and development of the Army; fundamentals of leadership; operations of the basic military team including missions, organization, communication and control; introduces military topography including the use of terrain maps and aerial photos. One and one-half class hours per week.

**MS 301-302 Advanced Leadership and Management  
(6)**

Prerequisite: Completion of the basic course or equivalent and selection by the professor of military science. Case studies in leadership, management, and decision making; development of ability to communicate with emphasis on military situations, advanced offensive and defensive tactical operations (to include military geography, weapons systems, and communication systems) and the role of the various branches of the Army; discussion of the military environment, preparing, presenting, and evaluating military instruction. Three class hours per week.

**MS 401-402 Theory and Dynamics of the Military Team and Seminar in Leadership and Management  
(6)**

Prerequisite: MS 301-302. Studies of military operations and the military teams to include military geography and the coordination and planning between elements of the team; analysis of selected leadership and management problems involved in unit administration, military justice, and the Army readiness program; the position of the U.S. in the contemporary world scene discussed in the light of its impact on leadership and management problems of the military service; obligations and responsibilities of an officer on active duty. Three class hours per week.

**MS Military Science Leadership Laboratory**

Progressive development of leadership abilities through participation in leadership activities including command and staff action, familiarization with the service weapon, drill and ceremonies, field training exercises, and civilian and military guest speakers. Purpose of leadership laboratory is to develop leadership through demonstrated teamwork, esprit de corps, and unity of effort toward a common goal, emphasizing duties and responsibilities of junior leaders. Required of all students.

Prerequisites may be waived by consent of department.

\*Starred prerequisites may be taken concurrently with listed offering.

### **36 Introduction to Accounting (3)**

An introduction to the nature of accounting information and its use by managers and investors. The course is designed as a multi-media, home-study course intended to meet the needs of off-campus students. Topics include: the nature of financial reporting, analysis of financial statements, budgeting, cost-volume-profit analysis, capital project evaluation, income recognition concepts, and the accounting accumulation process. Not available to students with previous fundamentals of accounting.

### **104 Introduction to FORTRAN Programming (3)**

A study of the principles of programming digital computers using the FORTRAN language.

### **106 Basic Marketing (3)**

Prerequisite: Accounting 140, Economics 51, and Statistics 131. An examination of the character and importance of the marketing process, its essential functions and the institutions performing them. Attention is focused on the major policies (such as distribution, product, price, promotion) which underlie the multifarious activities of marketing institutions and the managerial, economic, societal implications of such policies.

### **109 Introduction to COBOL Programming (3)**

Fundamentals of computer programming using the COBOL language. The programming of business applications for the computer is stressed.

### **110 Introduction to Management Information Systems (3)**

The systems concept and systems analysis are studied, which includes the definition of a system. Financial cost accounting and generalized management information systems are analyzed. The social implications of such systems are examined.

### **131 Elementary Statistics (3)**

Prerequisite: Mathematics 102. An introduction to statistical methods and concepts used in the decision processes of business problems. Statistical measures and estimators are examined in relation to the estimation and testing problems of statistical inference. Formerly Elementary Statistics 31.

### **140 Fundamentals of Financial Accounting (3)**

Prerequisite: Sophomore standing. A one semester course in financial accounting theory and practices with primary emphasis upon the accounting cycle and the preparation of financial statements for proprietary, partnership, and corporate entities.

### **145 Managerial Accounting (3)**

Prerequisite: Accounting 140 or equivalent. This is an advanced course in accounting that goes beyond the scope of a second semester course in fundamentals; and emphasizes the development, interpretation, and use of relevant cost behavior, control, and traceability concepts for purposes of management planning, controlling, and decision-making. Topics include: the contribution concept, direct costing, performance standards and variance analysis, responsibility accounting, segment profitability, alternative choice decisions, and capital budgeting.

### **156 Legal Environment of Business (3)**

Prerequisite: Economics 51, Accounting 140. An introduction to the nature and meaning of law, sources of law, legal process and institutions. The legal environment of business is defined as: the attitude of the government toward business, the historical development of this attitude; current trends of public control in taxation, regulation of commerce and competition; freedom of contract, antitrust legislation and its relationship to marketing, mergers and acquisitions; and labor management relations.

### **202 Fundamentals of Production (3)**

Prerequisite: Economics 51, Statistics 131 and Accounting 145. An examination of the concepts, processes, and institutions which are fundamental to an understanding of the production function in business enterprise. Emphasis is on the management and organization of production operations, and upon the application of scientific and quantitative methods to the solution of production problems.

### **204 Financial Management (3)**

Prerequisite: Accounting 145, Economics 51 and \*Statistics 131. The study of a firm's need for funds; the institutions, instruments and markets concerned with raising such funds; and the techniques of analysis used to determine how effectively these funds, once raised, are invested within the firm.

### **210 Management as a Behavioral Science I (3) (Formerly 310)**

Prerequisite: Statistics 131 and 3 hours in anthropology, psychology, or sociology. Organization theory examined as to its historical basis and current status, from a systems perspective. Nature and relevance of individual and organizational goals considered. Technological and structural influence on organizational behavior is examined. Characteristics of individuals and groups in an organization context explored.

### **221 Financial Markets and Institutions (3)**

Prerequisites: Economics 50 and 51. Demand, supply, and flow of funds in the macrofinancial system, determinants of the structure of interest rates, and the impact of monetary and other governmental policies on interest rates, securities prices, and flows



of funds. Examines types and historical development of financial intermediaries, including their regulatory environment, decision making within individual intermediaries, and how their portfolio decisions affect flows of funds in the economy.

**224 Introduction to Systems Programming (3)**

Prerequisite: Grade of A or B in FORTRAN Programming 104 or consent of instructor. Development and interpretation of machine languages, addressing techniques, symbolic coding and assembly systems. A particular computer and programming system will be used extensively to illustrate concepts and to give students actual experience in programming.

**231 Intermediate Statistics (3)**

Prerequisite: Statistics 131, Mathematics 101 and 102. A study of advanced statistical concepts as applied to the methods of statistical designs and models.

**253 Managerial Economics (3)**

(Same as Economics 253) Prerequisite: Economics 51 and Mathematics 101. Applications of microeconomic theory to the decision-making process in the business firm. Discussion of cost behavior, price and output determination under various competitive conditions, as well as factors affecting wages, interest, and profits.

**256 Business Law (3)**

Prerequisite: Accounting 140 and Economics 51. Introduction to legal instruments and statutes centering on such things as contracts, agencies, partnerships, unincorporated organizations, corporations, negotiable instruments, bailment, personal and real property, bankruptcy and receivership. Includes a survey of federal regulatory legislation to motivate and preserve competition and to protect the public.

**270 Management of Promotion (3)**

Prerequisite: Marketing 106. A study of the design, organization, and implementation of the marketing "communications mix." Various methods, such as advertising, personal selling, and publicity are analyzed as alternatives for use alone or in combination to stimulate demand, reseller support, and buyer preference. Particular topics considered include: media selection, sales promotionals, packaging, selling strategy, and their relationships in the promotion process.

**275 Marketing Intelligence (3)**

Formerly Business Administration 275. Prerequisite: Marketing 106. An investigation of the acquisition, presentation, and application of marketing information for management. Particular problems considered are defining information requirements, evaluating research findings, and utilizing

information. Statistical methods, models, and or cases are employed to illustrate approaches to marketing intelligence problems, such as sales forecasts, market delineation, buyer motives, store location, and performance of marketing functions.

**289 Career Planning (1)**

Prerequisite: A minimum of junior standing. The emphasis of this course will be to assist business students to develop an understanding of themselves as related to employment, to develop an understanding of the world of work, and to integrate these so that effective career decisions can be made.

**295 Business Administration Problems (1-10)**

Prerequisites: To be determined each time the course is offered. Study of selected special problems in business and administration. May be repeated for credit with different topics.

**296 Independent Study (variable credit)**

Prerequisites: Permission of the professor and the Dean. Occasional special individual study topics under the guidance of a specific professor.

**301 Buyer Behavior (3)**

Prerequisite: Marketing 106 and 3 hours of psychology or sociology, or consent of instructor. A study of consumer functions and concepts in economics, marketing and related subjects such as decision-making, attitude formation, cognition, perception, and learning as related to marketing phenomena-product image, brand loyalty, shopping preference, diffusion of innovations. These are considered in context with political, social, market and legal influences on buyer behavior.

**302 Quantitative Marketing Methods (3)**

Prerequisite: Marketing 106, Mathematics 102, or permission of instructor. Applications of stochastic, deterministic and simulation techniques to decision areas, such as market potential, product diversification, physical distribution alternatives, retail location, media selection, and market exposure. Quantitative and computerized methods are used heavily to enhance decision-making in marketing, especially the selection, allocation, budgeting and forecasting of marketing resources.

**305 Computer Systems (3)**

Prerequisite: Business Administration 110, or Business Administration 109 if prior to Fall 1975, or consent of instructor. Computer systems, their hardware and basic operating software, are studied with attention to the factors involved in computer system implementation and maintenance. Examples of integrated business computer systems, including communication systems, are analyzed.

**308 Production and Operations Management (3)**

Prerequisite: Fundamentals of Production 202.

Mathematics 101 and 102. Application of the tools and techniques of statistical decision theory and operations research to production and operating problems. Emphasis is on the use of mathematical modeling and simulation techniques to analyze complex and ill-structured problems in large scale systems.

**309 Personnel Management (3)**

Prerequisites: Management as a Behavioral Science I (210), or consent of instructor. A study of personnel practices and policies, acquisition, maintenance, and utilization of an effective work force. Employee selection, development, job performance, compensation, and collective bargaining. Emphasis on practical applications.

**311 Management as a Behavioral Science II (3)**

Prerequisite: Management as a Behavioral Science I (210). Using a task, people, structure and technology perspective, the organization is viewed as a social-technological system. Various methods of changing organizations to meet both individual and organizational goals are considered through the use of cases, exercises, and readings.

**312 Industrial and Labor Relations (3)**

Prerequisite: Management as a Behavioral Science I (210). Emphasis is on the dynamic relationship between management, employees, unions, and government as determinants in the efficient and effective use of human resources. Current issues and case materials are used to supplement text and lecture.

**315 Marketing Management (3)**

Prerequisite: Senior standing and 9 hours in marketing, including Business Administration 106 or consent of instructor. An intensive analysis of major marketing decisions facing the firm, such as level, mix, allocation and strategy of marketing efforts. Specific decision areas investigated include market determination, pricing, physical distribution, product policy, promotion, channel management and buyer behavior. Competitive, political, legal and social factors that may affect such areas of decision are discussed. Cases, models, and problems are used heavily.

**318 Industrial Psychology (3)**

(Same as Psychology 218) Prerequisite: Psychology 101 or Management as a Behavioral Science 210. Activities of the applied psychologist. Selection and placement, testing and interviewing, personnel research. Morale, motivation, and job satisfaction. Leadership skills and styles, creative management, industrial mental health. Psychology in advertising and marketing.

**331 Multivariate Analysis (3)**

Prerequisite: Elementary Statistics 131, Mathematics

101 and Mathematics 102. A study of statistical techniques applicable to multi-variable relationships.

**334 Investments (3)**

Prerequisite: Financial Management 204. Financial analysis of debt and equity instruments available on organized exchanges and in less tangible "over the counter markets." Techniques of such analysis being presented in context with economic and management circumstances within the company, industry, and economy.

**340 Intermediate Accounting Theory (3)**

Prerequisite: Fundamentals of Financial Accounting 140 with a minimum grade of C and Managerial Accounting 145 and Elementary Statistics 131. The development of a structure of financial accounting theory and an analysis of asset valuation methods emphasizing their effect on income determination.

**341 Advanced Accounting (3)**

(Includes a continuation of the intermediate text, and topics from the advanced text.) Prerequisite: Intermediate Accounty Theory 340, minimum grade of C (or consent of department). Application of accounting theory to equity valuation and the related effects on income determination. Other topics include accounting for price level changes, partnerships and fiduciaries.

**342 Consolidation and Specialized Accounting Problems (3)**

Prerequisite: Advanced Accounting 341, minimum grade of C (or consent of department). Accounting theory and practice relating to: consolidated financial statements, business combinations, foreign subsidiaries, corporate liquidation and reorganization, and non-profit organizations.

**345 Cost Accounting (3)**

Prerequisite: Accounting 145, minimum grade of C (or consent of department). Basic principles of cost determination and control of manufacturing and distribution activities; emphasizes the accumulation and tracing of cost to products, processes and responsibility centers for purposes of financial accounting and management control. Topics include: job-order and process costing and the development and use of standard costs within a system of absorption costing.

**347 Income Taxes (3)**

Prerequisites: Fundamentals of Accounting 140 with a minimum grade of C and Accounting 145 (or consent of instructor). Fundamentals of federal income tax accounting with emphasis on individuals and corporations. Topics covered include: determination of income, exclusions, exemptions, personal and business deductions, and tax credits.

**348 Auditing (3)**

Prerequisite: Accounting 341, minimum grade of C (or consent of department). Examination of fundamental audit objects and techniques employed in the verification, analysis, and interpretation of accounting records and financial statements. The work of the independent public accountant is emphasized to include the standards of professional performance.

**349 Managerial Aspects of Taxation (3)**

Prerequisite: Income Taxes 347. A study of taxation and tax issues, including the planning, in the managerial decision making process. Research directed to the solution of business tax problems.

**350 Financial Policies (3)**

Prerequisite: Financial Management 204. The intensification and application of the concepts developed in Finance 204. Special emphasis is given to the development of top management policies and their application toward complex problems of finance. Techniques for identifying and dealing with these problems before they become acute will be investigated. Cases will be integrated with appropriate outside reading.

**368 Business Fluctuations and Forecasting (3)**

(Same as Economics 368) Prerequisite: Economics 220. Discussion of factors affecting economic conditions, short-term fluctuations in business activity and plans and policies for economic stabilization. Emphasis on problems and techniques of forecasting aggregate and industry demand.

**375 Operations Research (3)**

Prerequisite: Statistics 131. Mathematics 101 and 102. Application of the theories and techniques of operations research to problems of business, government, and industry; with emphasis on the construction and utilization of quantitative decision models.

**380 International Business (3)**

Prerequisite: Economics 51. U.S. in the world economy; emerging nations; foreign exchange market; foreign investment; commercial documents; world trade; management of enterprises abroad.

**385 Mathematical Programming (3)**

Prerequisite: Statistics 131, Mathematics 101 and 102. A study of mathematical programming theory and algorithmic developments. Consideration is given to linear programming, integer programming, quadratic programming, dynamic programming, and other related techniques.

**391 Business Policy and Administration (3)**

Prerequisite: Senior standing, Marketing 106, Financial Management 204 and Management as a Behavioral Science 210. Comprehensive cases are

used to examine the dynamics of business management. The role of high echelon management in the administrative process is integrated with the diverse functions of business to develop an operation system. Particular attention is given to formulation of a policy framework, planning and implementing executive action. Both team and individual analyses and reports are utilized with class evaluation and recommendation. (It is preferred that this course be taken in the student's final semester).

**395 Business Administration Seminar (1-10)**

Prerequisite: To be determined each time the course is offered. May be repeated for credit.

**410 Managerial Economic Analysis (3)**

Microeconomic analysis focused toward better decision making in the individual organization. The concepts and mathematical tools of economic analysis are applied to the production and distribution function of organizations toward a normative objective of maximizing revenues and minimizing costs.

**411 Analysis of National Economic Environment (3)**

The character and functioning of the national economic system; analyzing and forecasting fluctuations in national income and product, employment and prices; the impact of these changes on business management; the influence of monetary and fiscal policies. Emphasis is on the acquisition of analytical tools for a better understanding of the forces affecting all business firms and for predicting national trends.

**412 Public Policies Toward Business (3)**

Analysis of public policies, as represented by laws, court decisions, and other governmental activities, as they affect efficiency in the public and private sectors, employment and price levels and business decision making.

**415 Societal Environmental and Management Decisions (3)**

Prerequisite: Business Administration 410 and 411. An examination of the external relationships of a business enterprise with the broad and diverse interests of society. These are government and social forces that sometimes operate counter to the potential dictates of theoretical internal economic policies for an individual organization. The primary objective is to examine the increasingly complex set of interrelationships among business, government, other economic groups, and "the public." A series of major current problems, chosen to raise some of the major issues involved in these interrelationships, and in particular to explore the development of public policy on such problems.

**416 International Finance, Investment and Commercial Relations (3)**

Prerequisite: Business Administration 411. The

international monetary system; balance of payments; liquidity; foreign-exchange market; foreign investment; international and regional financial institutions. Commercial documents; United States trade patterns, composition and structures; United States commercial policy; regional trade groupings; trade of emerging nations; international trade organizations.

**417 International Business Operations (3)**

Prerequisite: Business Administration 416. Functional management within multinational corporations; case studies of operations abroad; focus on managerial decision making.

**418 Governmental Budgeting and Financial Control (3)**

Prerequisite: Accounting 440. A study of municipal and Federal financial control and budgeting procedures with emphasis on public policy. The impact of financial control on top management decisions and the effect of budget strategies on the allocations of public funds.

**420 Seminar in Business Administration (3)**

An intensive study of a specific area of business administration of some specific business or economic phenomenon, or a specific problem or theory. Several different courses may be offered under this course number. A decimal number following the course number is assigned as further identification of the area studied.

**430 Individual Research (1-10)**

Prerequisite: Permission of the professor and graduate director. Special individual research topics under the guidance of a specific professor.

**490 Policy Formulation and Administration (3)**

Prerequisites: Accounting 440, Finance 450, Management 460, Marketing 470 and Quantitative 482. This course should be taken during the semester prior to graduation. In no case may it be taken sooner than two semesters prior to graduation. A capstone case course which views policy problems and issues from the perspective of top management. Policy formulation, decision making processes and corporate strategy. Implementation of corporate policy requires an examination of leadership, communication, organizational structure, and social responsibility.

**Accounting**

**440 Financial Accounting: Theory and Practice (3)**

Business organization, operations and terminology. A survey of the broad areas of accounting, including its mechanism. Emphasis on the development of a logical framework of underlying concepts upon which practices and procedures are superimposed. Intensive study of balance sheet, income statement

and other financial reports, together with the accounting principles underlying them. Statements designed for stockholders and creditors. The interpretative and analytical point of view is stressed.

**441 Concepts in Management Accounting (3)**

Prerequisite: Accounting 440. The development, interpretation and uses of accounting reports and supplementary information for management planning, control and decision making. Emphasizes the application of relevant cost behavior, control and traceability concepts in the preparation of internal accounting reports, with a secondary emphasis upon product costing techniques as appropriate to financial accounting needs. Topics include break-even analysis, operational budgeting, direct costing, absorption costing, standard costs and variance analysis, business segment analysis, responsibility accounting and distribution cost accounting, gross profit analysis.

**445 Financial Accounting: Advanced Theory and Analysis (3)**

Prerequisite: Accounting 440 or equivalent. Development of a structure of financial theory and analysis of asset and equity valuation methods and their related effects on income determination.

**446 Topics in Professional Accounting (3)**

Prerequisite: Accounting 440 and Quantitative 481. An investigation of the impact of past, current and prospective developments upon the role of the professional accountant. Topics include professional ethics, generally accepted auditing standards, types of auditor's opinions, internal control and internal auditing, the use of probability theory and statistical sampling methods in the conduct of an audit, management advisory theory and statistical sampling methods in the conduct of an audit, management advisory services, auditing in mechanized and electronic data processing systems, requirements imposed by the S.E.C. and other regulatory agencies, legal responsibilities.

**447 Financial Information Systems in Modern Business (3)**

Prerequisite: Accounting 440 and Quantitative 480. Application of systems concepts to accounting procedures and reporting systems to facilitate internal management control. Topics include the analysis and determination of true requirements of the system, design and implementation of new systems to fulfill such requirements, application of integrated data processing concept to accounting systems designed to maximize accounting data obtained with a minimum number of operations, use of "flowchart" principles to facilitate comprehension of the overall effect of related accounting procedures, and total accounting reporting systems to facilitate internal control through appropriate control instruments, geared to the organizational

structure, for the attainment of corporate goals, both operational and financial. Application of these concepts is made through practical case studies assigned to each student for class presentation.

**448 Seminar in Advanced Theory and Contemporary Issues in Accountancy (3)**

Prerequisite: Accounting 440. Consideration of the positions of several authoritative groups concerning the structure of accounting theory-assumptions, postulates, principles and practices. Evaluation of these positions in view of confirming and conflicting periodic literature. Critical analysis of topics of current interest and importance in accounting literature.

**Finance**

**450 Financial Management (3)**

Prerequisite: Accounting 440. A consideration of the methods used to determine the firm's need for short- and long-term capital, the possible means of securing such capital once a need has been determined, and the techniques for judicious use of the capital in terms of asset investment and asset management decisions. Topics include the finance function, operating and financial methods of capital budgeting decisions, cost of capital, dividend policy, long-term financing, management of current assets, intermediate and short-term financing, and corporate valuation in mergers and consolidations.

**451 Advanced Financial Management (3)**

Prerequisites: Finance 450, Quantitative 480 and 481. Exposure to recent financial management theory through selected readings. Financial management problems are considered by the use of cases and simulation models. An original research project under the supervision of the instructor is required.

**455 Security Analysis (3)**

Prerequisite: Business Administration 450. An in-depth study of techniques used in evaluating various financial assets as investment opportunities. Financial assets studied include common stock, preferred stock, and fixed income securities. Other related topics such as sources of investment information and current market trends are discussed.

**456 Management of Financial Intermediaries (3)**

Prerequisite: Business Administration 441, Finance 451, or concurrent registration. A consideration of the unique problems of management of institutions which form the money and capital markets in the United States. The impact of monetary and fiscal policies on the dynamic management of the financial assets of numerous financial intermediaries: commercial banks, insurance companies, savings and loan associations, investment bankers, and investment companies.

**457 Portfolio Management and Special Topics in Investments (3)**

Prerequisites: Business Administration 450, 481, and 334 or 455, or instructor's permission. Traditional portfolio management as well as current portfolio theory is studied. The use of simulation and mathematical models to optimize the return on portfolios is discussed. In addition, special topics of current interest or recent developments in the field of security analysis and portfolio management are presented.

**Management**

**460 Administrative Processes (3)**

Managing organizational and behavioral elements in the production and personnel functions of a business enterprise. Planning, organizing and controlling resources and activities; integrating and motivating personnel in the business organization. Special attention is given to the functions of managers and to the leadership role of the manager in production and personnel operations. Cases and selected readings are utilized to broaden the student's appreciation of the administrative process.

**461 Organization Theory and Group Behavior (3)**

Prerequisite: Management 460. Examination of selected theories affecting individual behavior and operating performance in organizations. Formal and informal organization, communication, the decision-making process and the bureaucratic process are analyzed for their structural impact. The course seeks to develop in each student an ability to analyze and evaluate organizational conditions and to increase his understanding of human behavior.

**465 Union-Management Relations and Collective Bargaining (3)**

Prerequisite: Management 460 and Business Administration 412. Primary concern is with the setting and the dynamics of contract negotiation and administration. Emphasis is on the development of insight and understanding of the forces affecting the decisions of the parties to a labor contract within the context of the social, political and economic environment of the organization. A dynamic approach is taken to examine difficulties that arise in attempting to administer a collectively established relationship between employer and employee.

**466 Personnel Appraisal (3)**

Prerequisite: Quantitative 481 and Management 460 or academic background in general psychology. Theory and techniques of human assessment, including the personnel interview, employee-ratings, attitude scaling, ability and personality testing. Consideration of the potentials and limitations of each technique.

**467 Dynamics of Interpersonal Relations (3)**

Prerequisite: Management 460 or academic background in general psychology. The self-concept, personality dynamics and mechanisms of adjustment. Catalysts and barriers to effective communication. Examination of the functional relationship between ego-needs, perceptual distortion and stereotypical thinking. Role-playing, the resolution of role-conflict and objective self-evaluation. The development of cooperation and trust as a prerequisite to effective human relations.

**Marketing****470 Contemporary Marketing Concepts (3)**

Prerequisite: Accounting 440 and Business Administration 410. Designed for students with no prior course work in the field of marketing. A wide spectrum of marketing institutions and activities is covered. The impact of marketing on the total firm, the economy and society in general is assessed. The course is intended to develop and organize the fundamental marketing concepts necessary to an analytical study of consumer behavior, the economic environment and four managerial aspects of marketing. The acquisition and utilization of marketing research data for problem solving is stressed. Relation and integration of basic marketing knowledge to the successful development of sound marketing policy, planning and strategy is developed.

**471 Marketing Planning and Strategy (3)**

Prerequisites: Marketing 470. Emphasizes the development of a total marketing program through an analytical study of the marketing-mix, the diagnosis of the business situation, along with the influence of exogenous variables and the development of an effective overall marketing strategy. Stresses importance of an integrated marketing plan and utilizes modern decision making tools. Supplementary readings, journal articles and current periodicals are used to place the theoretical framework of the course into the contemporary environment of the market place.

**475 Consumer Motivation and Behavior (3)**

Prerequisite: Marketing 470. An analysis of the socio-psychological foundations of consumer behavior including personality differences, needs and wants, status symbols, social change and mobility, fads and fashions. Consumer spending and saving habits, product preferences, leisure-time patterns, shopping behavior and motivation research also are examined for their impact on advertising, selling and marketing management.

**476 Marketing Communications (3)**

Prerequisite: Marketing 470. Deals with managerial decision making by placing particular emphasis on assimilating and integrating all forms of marketing communication in the development of promotional

policies, plans and procedures. Course approach is analytical rather than descriptive in investigating the areas of advertising, public relations, sales management, packaging and other forms of demand stimulation.

**477 Product Planning and Pricing (3)**

Prerequisite: Marketing 471 or concurrent registration. A study of product management including the areas of new product development, the concept of the product line, deletion of nonessential products and establishing the product's price. Also examined are pricing alternatives and the factors influencing price setting in the framework of a contemporary market structure.

**478 Marketing and Business Research Seminar (3)**

Prerequisite: Marketing 470. A broad approach to marketing research as a model for acquiring, retrieving, and analyzing decision-making information. Includes market measurement, evaluation of sales and cost effectiveness, sales forecasting, and primary marketing research studies aimed at solving specific problems. Emphasis is placed also on building a theoretical and analytical framework to provide flexibility in the design of marketing experiments and in judging recent research innovations.

**479 Marketing and Channel Strategy (3)**

Prerequisite: Marketing 470 and Quantitative 482. A study of the marketing institutions involved in the distribution of goods and services, industrial and consumer markets, as well as the establishment and integration of marketing channels. The planning and analysis of the macrodistribution and microdistribution systems which contribute to creation of optimal time and place utility. Some attention is paid to quantitative applications to marketing situations including simulation and logistics.

**Quantitative Management Science****480 Introduction to Computer Programming and Business Application (3)**

A particular computer, compiler language and computer system (University of Missouri Computer network) are used extensively to illustrate computer system concepts and to give the student actual experience in programming and implementing business oriented systems. Time sharing systems are studied and utilized.

**481 Statistical Analysis for Management Decisions (3)**

Development of the role of statistical evidence in the formation of inference and in the selection of strategies in solving business problems. Probability and probability distributions are studied as a basis of inference and applying Bayesian decision methods.

An approach to multivariate analysis provides an integration of analysis of variance and regression methods.

**482 Operations Research Methods (3)**

Prerequisite: Quantitative 481. Development of a working knowledge of operations research techniques, as applied to dynamic business problems. A study of analytical approaches to business problems, construction of mathematical models and manipulation of model variables for managerial decision making. Topics include mathematical programming, inventory theory, game theory, queuing theory, sequencing models, and simulation models.

**483 Production and Operations Management (3)**

Prerequisite: Quantitative 482. A study of the basic problems encountered in the administration of the production function. Topics include interpreting the production function; schematic, statistical and economic analysis of production problems and production simulation models. The case method is used extensively in the course.

**485 Computer Information Systems: Theory and Practice (3)**

Prerequisite: Business Administration 480. The stages in the analysis, design and implementation of a computer information system (CIS) are examined. Data base concepts and the economics of computer hardware are studied. The importance of management's involvement in successful systems planning and development is emphasized.

**486 Advanced Statistical Methods For Management Decisions (3)**

Prerequisite: Quantitative 481. A study of statistical methods applicable to specialized areas of statistical analysis. Topics include Markov Processes, distribution-free tests, sampling theory and methods, experimental design, time series analysis, and spectral analysis.

**487 Advanced Operations Research Applications (3)**

Prerequisite: Quantitative 482. Application of operation research techniques to business problems. After a brief review of these techniques, followed by an examination of typical applications reported in the literature, the major portion of the term is spent in analyzing and solving an actual business operations research problem. A team approach is used, with groups of two or three students responsible for finding and solving an operations research problem in a local company. Primary emphasis is placed on the use of operations research techniques to solve management problems.

**School-wide**

Prerequisites may be waived by consent of department.

\*Starred prerequisites may be taken concurrently with listed offering.

**220 Special Topics in Education (1-3)**

Prerequisite: Completion of 75 hours and consent of instructor. Examination of a special area or topic within the field of education. Topics to be considered will be announced prior to registration and may vary. For elective credit only. This course may be repeated for different topics. Not to exceed a total of 6 hours credit.

**290 Independent Study (1-3)**

Prerequisite: Completion of 75 hours and consent of instructor. Independent study through readings, research, reports, and conferences designed to provide depth in areas of study previously introduced in education courses. For elective credit only. May be repeated not to exceed a total of 3 hours credit.

**363 Practicum In Individualized Instruction (3-6) (F, W)**

Prerequisite: Completion of the course(s) to which assigned for instruction and consent of instructor. Supervised instruction in individualized programs. Seminar accompanies instructional experience. May be repeated.

**380 Graduate Workshop (Credit arranged)**

Prerequisite: Consent of instructor.

**399 Graduate Institute (Credit arranged)**

Prerequisite: Consent of instructor.

**422 Internship (1-10)**

Prerequisite: Consent of instructor. Closely supervised experience in a field setting under the direction of a graduate faculty member. An appropriate level of competence and evidence of growth in the professional role must be demonstrated by the intern. The internship will include planning, research, evaluation, and related professional activities.

**490 Thesis Research (1-10)**

Prerequisite: Consent of instructor.

**499 Graduate Institute (1-10)**

Prerequisite: Consent of instructor.

**Administration, Foundations, and Secondary Education****Adult Education****D455 Principles of Business Education (3)**

Prerequisite: Business education certification; consent of instructor. Designed for the business education teacher, this course examines in depth the principles, practices, and problems of business education programs. It emphasizes research into historical and philosophical implications, the influence of contemporary attitudes on business education, evaluation of current programs, and development of innovative approaches. It may be applied toward Missouri vocational business education certification.

**D456 Coordination of Cooperative Education Programs (3)**

This course deals with student selection, procedures; coordinating vocational instruction and planned employment experiences; research techniques for collecting and analyzing data for process and product evaluation; procedures for implementing new ideas and innovations in cooperative education programs. The course is designed for vocational teachers interested in secondary school cooperative programs, and teachers who wish to qualify as coordinators of cooperative education programs.

**D457 Improvement of Instruction in Secretarial Subjects (3)**

Prerequisite: Business education certification; consent of instructor. Designed for business education teachers, this course examines current trends in planning, organizing, developing, and evaluating instructional materials relevant to business education classes. Emphasis is placed on research techniques and strategies for selecting and utilizing appropriate curriculum materials, resources, and media to match learning needs.

**D485 Problems of Teaching College Biology (3)**

Prerequisite: Teaching experience, 30 semester hours in biology, and consent of instructor. Basic philosophies underlying undergraduate biology education at the college level will be presented and examined with concern for establishment of an individual philosophy in the prospective college teacher. Teaching techniques suitable for college level instruction will be considered, practiced, and evaluated. Advantages and limitations of various methods of instruction will be considered with respect to current research findings.

**Educational Administration****C400 Problems (1-10)****C401 Extracurricular Activities (3)**

Activities related to the extracurricular program of secondary schools will be studied in depth. Analysis of appropriate activities will include the nature and purposes of these activities.



**C406 Secondary School Administration (3)**

Specialized course in secondary school administration for school administrators, supervisors, teachers.

**C408 Elementary School Administration (3)**

Specialized course in elementary school administration for school administrators, supervisors, teachers.

**C410 Seminar (1-10)****C411 Theory and Organizational Development in Educational Administration (3)**

Course designed to examine the theory and organizational development in the area of Educational Administration. A comprehensive examination of the work of scholars in the field will provide an insight into practical functions of theory.

**C414 Foundations of School Administration (3)**

Emphasis on processes common to all phases of educational administration. Conceptual framework for administration of education, decision-making, and organizational theory.

**C416 School Buildings and Sites (3)**

Course is designed to acquaint the administrator with methods and procedures for projecting future building and facility needs of a public school district and for supervising actual planning of facility construction. Maximizing utilization of current facilities will be studied in detail.

**C418 Legal Aspects of Educational Administration (3)**

Principles of law as derived from court decisions; statutory and constitutional provisions affecting education. Legal status (powers and responsibilities) of school board members, superintendents, principals, teachers, and pupils.

**C419 State and Federal Financing of Public Education (3)**

Economic implications of public education. Determination of policy and practice in financing of public schools by local, state, and federal agencies. Developing principles of adequate tax programs and designing systems of state support of public education.

**C420 Administration of Professional Personnel (3)**

Problems of procurement, employment, induction, in-service development, salary, negotiation, and welfare policies influencing professional personnel of schools.

**C422 Leadership in Educational Administration (3)**

Course is designed to acquaint the administrator with the factors of groups and interpersonal relationships directly affecting him in his job performance. The

consequences of various types of group relationships upon the institution will be studied in detail. The administrator will study various rationales for and methods of improving interpersonal relationships within his institution.

**C425 Administration of Organizational Change Strategies In Schools (3)**

Prerequisite: Education C414. This course deals with (1) developing strategies for assessing educational needs, (2) methods of assessing the school's "organizational health," (3) the designing of educational change strategies involving theory-based models, (4) using systems analysis techniques to successfully implement educational change, and (5) methods of involving students and staff in incorporating meaningful organizational change strategies in educational institutions.

**C430 Administration of Community Education (3)**

An introductory course designed to familiarize the student with the structure, purpose, and processes of community education with particular emphasis being placed on the community school.

**C431 Programming in Community Education (3)**

Prerequisite: Education C430. Study and analysis of basic situations in which community and adult educational programming takes place. Within this framework, application will be made of a fundamental series of steps essential to sound educational programming.

**C441 Principles of Public School Finance in Missouri (3)**

Course is designed to analyze and study critical areas of public school finance at the local and state levels, highlighting the role of such factors as legislative procedures, principles of local and state support, budgeting and accounting procedures, assessment of property, etc.

**C452 Problems in School Public Relations (3)**

Principles of good public school relations, unique public functions of various school and community groups. Techniques for conducting school public relations.

**Educational Foundations****65 The University (3)**

An interdisciplinary course on the principles, development, and organized structure of the university. Special emphasis will be placed on the role of the university in modern society and upon forces affecting the direction of the university and its potential for change. Methods include outside speakers, discussion groups, and laboratory research on UMSEL.

**101 The School in Contemporary Society (3)**  
**(F, W, S)**

Prerequisite: Sophomore standing. The introductory course in teacher preparation. An examination of the structure and function of the school in today's society, exploration of the social and anthropological factors related to current educational problems. Cognitive and affective objectives of education are the content for examining educational practices and for exploring each student's personal attributes as they relate to the teaching act. Required of students admitted to the School of Education. Prerequisite to other professional course.

**201 Black Americans in Education (3)**

An examination and analysis of conditions affecting the education of black Americans and their schools, with emphasis on relationships between schools and the black community, and needed changes in education.

**320 Comparative Education (3)**

A comparative study of representative systems of education in South America, Europe, and Asia in contrast with the American system.

**321 Progressivism and Modern American Education (3)**

Relationship between American progressive school theory and contemporary classroom practices, including the open classroom, the community school, the alternate school, open admissions, and learning by individual contract. Trends will be interpreted in the light of various roles of the classroom teacher in the modern school.

**322 History of American Education (3) (F, W)**

Prerequisite: A course in American history or consent of instructor. An overview of the evolutionary development of American educational theory and practice from the early colonial period to the present. Attention is also given to selected issues in professional education.

**B 400 Problems (1-10)****B471 Philosophy of Education (3)**

A study of the fundamentals of education in the light of modern science and philosophy.

**B472 Analysis of Educational Issues (3)**

Prerequisite: A course in philosophy of education or a course in history of education, or consent of instructor. A critical examination of issues about the elementary and secondary schools. This is done through the analysis of the procedures, resources, and goals that guide school policies and practice.

**B475 History of Western Education (3)**

A course designed to survey the educational development of western civilization from

approximately the eighth century B.C. until the present. Salient educational theory and practice will be considered in their appropriate social context.

**E480 Development and Organization of Urban School Systems (3)**

An examination and analysis of the development and existing conditions affecting urban education, with emphasis on current efforts to bring about quality education in urban areas. A review of current projects and research as well as the affect of these projects upon the school systems would be included.

**Educational Statistics and Research****330 Educational Statistics (3)**

Statistical methods for teachers, supervisors, superintendents, and beginning graduate students. Frequency distributions, measures of central tendency, variability, sampling, and correlation.

**G427 Educational Statistics (3)**

Statistical methods for teachers, supervisors, superintendents, and beginning graduate students.

**G430 Research Design for Teachers and Counselors (3)**

A primarily non-quantitative course surveying the various techniques and strategies available to the educational researcher for the design and execution of research, as well as for the evaluation of research carried out by others.

**Educational Technology****340 Selection and Utilization of Educational Media (3) (F, W, S)**

Introduction to the selection, use, and evaluation of audio visual materials and equipment including films, slides, transparencies, projectors, globes, charts, maps, bulletin boards, plus programmed materials, information retrieval systems, and instructional television.

**371 Preparation of Materials for Audio-Visual Education (3)**

For classroom teachers. Evaluation of audio-visual education procedures and classroom instruction, including the preparation of audio-visual education materials.

**376 Instructional Television and Other Audio-Visual Media (3)**

Prerequisite: Consent of instructor. A consideration of the planning, writing, producing, and directing of educational programs for television. Study of fundamentals of lighting, camera operation, and audio and video recording. Each student is expected to produce and direct educational television programs.

**Secondary Education****30 Shorthand Theory I (2) (F)**

Prerequisite: Typewriting. Study of Gregg shorthand theory with emphasis on reading, writing, and taking dictation at moderate rates. Not open to students with previous training in Gregg shorthand theory.

**31 Shorthand Theory II (2) (W)**

Prerequisite: Shorthand Theory I or equivalent and Business and Professional Typewriting I or equivalent. Review of Gregg Shorthand Theory; development of speed and accuracy in taking dictation; emphasis on transcribing techniques and office-style dictation.

**32 Business and Professional Typewriting I (2) (F)**

Prerequisite: Beginning typewriting. Review of typewriting techniques and skills; development of speed and accuracy; instruction in the preparation of business and professional papers and forms with emphasis on word processing and secretarial typing.

**33 Business and Professional Typewriting II (2) (W)**

Prerequisite: Business and Professional Typewriting I or equivalent. Preparation of business and professional papers and forms in simulated office situations, instruction in typing short cuts.

**163 Techniques of Secondary School Teaching (3) (F, W, S)**

Prerequisite: Education 101 and admission to the School of Education. Activities and interaction of teachers and pupils in development of conditions for learning in secondary schools. Analysis of teaching-learning process and examination of studies of teaching.

**231 Methods of Teaching Typewriting (3) (F)**

Prerequisite: Intermediate typewriting or equivalent. Instruction in the methods and techniques used to teach basic and advanced typewriting.

**232 Methods of Teaching Shorthand (3) (F)**

Prerequisite: Gregg Shorthand Theory II; transcription or equivalent. Instruction in methods and techniques used in teaching Gregg shorthand, dictation, and transcription with emphasis on planning and organizing a shorthand laboratory and a secretarial practice laboratory.

**235 Methods of Teaching Accounting and Data Processing (3) (W)**

Prerequisite: Business Administration 140, 340, or equivalent. Methods and techniques of teaching data processing and accounting in the secondary schools.

**236 Methods of Teaching Social Business Subjects (3) (F)**

Prerequisite: Economics 51, Business Administration 106, 256, 156. Methods and techniques of teaching

general business, business law, economics, consumer economics, and business principles and management in the secondary curriculum.

**237 Secretarial Practice (3) (W)**

Prerequisite: Education 31 and 33 or consent of instructor. Study of secretarial office procedures; office-style dictation for transcription; work processing; office machines; records management.

**238 Field Experience and Seminar in Secretarial Practice (3)**

Prerequisite: Education 101, 237, and admission to the School of Education. Practical experience in office procedure. To be taken before student teaching.

**261 Curriculum and Methods of Teaching Business Subjects (3) (F, W)**

Prerequisite: Education 163, 231, 232, 235, 238, and near major in the subject matter. Study of the scope and sequence of business education courses in the high school curriculum, with emphasis on business English, distributive education program, organizations, and publications. Attention is also directed toward learning the techniques and research tools of the scholar in the field of business education. To be taken concurrently with student teaching. Course meets first four weeks and last week of semester.

**262 The Curriculum and Methods of Teaching English (3) (F, W)**

(Same as English 262) Prerequisite: Education 163 and a near major in the subject matter. A study of the scope and sequence of the English course in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of English. To be taken concurrently with student teaching.

**263 The Curriculum and Methods of Teaching Art (3)**

Prerequisite: Education 163 and a near major in the subject matter. A study of the scope and sequence of art courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of art. To be taken concurrently with student teaching.

**264 The Curriculum and Methods of Teaching Foreign Language (3) (F, W)**

(Same as French 264, German 264, Spanish 264) Prerequisite: Education 163 and a near major in the subject matter. A study of the scope and sequence of the foreign language courses in the school curriculum with emphasis on the selection and

organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of foreign language. To be taken concurrently with student teaching.

**265 The Curriculum and Methods of Teaching History and Social Studies (3) (F, W)**

(Same as History 265) Prerequisite: Education 163 and a near major in the subject matter. A study of the scope and sequence of the history and social studies courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of history and social studies (not counted as credit for a major in history). To be taken concurrently with student teaching.

**266 The Curriculum and Methods of Teaching Mathematics (3) (W)**

Prerequisite: Education 163 and a near major in the subject matter. A study of the scope and sequence of the mathematics courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of mathematics. To be taken concurrently with student teaching.

**267 The Curriculum and Methods of Teaching Secondary School Music (3) (W)**

(Same as Music 267) Prerequisite: Music 112 and Education 101. For the music education major. The secondary school music curriculum including choral and instrumental performance organizations, non-performance classes, related art courses, administrative procedures. The class is divided when appropriate according to the vocal or instrumental programs of the students.

**271 Secondary School Student Teaching (6) (F, W)**

Prerequisite: Education 163 and admission to student teaching. Clinical teaching experience in secondary school classrooms under university and school supervision. To be taken concurrently with appropriate curriculum and methods course.

**280 The Curriculum and Methods of Teaching Physical Sciences (3) (F)**

(Same as Chemistry 280 and Physics 280) Prerequisite: Education 163 and a near major in the subject matter. A study of the scope and sequence of the physical science courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science. To be taken concurrently with student teaching.

**285 The Curriculum and Methods of Teaching the Life Sciences (3) (W)**

(Same as Biology 285) Prerequisite: Education 163 and a near major in the subject matter. A study of the scope and sequence of the life sciences courses in the school curriculum, with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science. To be taken concurrently with student teaching.

**300 Administration and Supervision of Office Personnel (3) (W)**

Prerequisite: Consent of instructor. An advanced course in office administration and supervision designed to meet the needs of business personnel involved in administrative office management work; emphasis on updating leadership and human relations skills, organizing, planning, controlling office services, and business data processing systems.

**352 Secondary School Curriculum (3)**

Prerequisite: Education 163. Sources, scope, and organization of the curriculum, modern trends and methods of investigation.

**365 Problems of Teaching Reading in Secondary Schools (3) (F, W, S)**

Prerequisite: Education 101. Methods and materials for improving reading in secondary school classes, including content fields.

**370 Field Study in Secondary Education (1-10)**

Identification of specific problems in the area of secondary education. Course is conducted as a field study in the public schools. A maximum of 8 credit hours may be applied toward an advanced degree contingent upon adviser approval.

**D400 Problems (1-10)**

**D402 Supervision of Clinical Experiences in Teacher Education (3)**

Prerequisite: Teaching experience and consent of instructor. A consideration of the clinical phase of the teacher education program, with special emphasis on student teaching. Examination of role responsibilities and supervisory practices. Study of professional literature for research findings, theoretical formulations, and recent developments in the field.

**D410 Seminar (1-10)**

**D415 Secondary School Supervision (3)**

Methods of improving instruction in junior, senior high schools.

**D430 The Junior High School (3)**

Survey of the progress of junior high school, including study of more important problems of organization, administration.

**D440 The Improvement of Secondary School Teaching (3)**

For secondary school teachers, principals, superintendents with considerable training in education and experience in teaching. Recent developments in secondary school teaching.

**D445 The Secondary School Curriculum (3)**

For secondary school principals, teachers, superintendents. Present methods in curricular change, methods of curricular investigation.

**D446 Curriculum Construction for Secondary Schools (3)**

Prerequisite: Education D445 or consent of instructor. Designed for those engaged in curriculum revision work and construction of new secondary school courses.

**D448 Individualizing Instruction in Secondary Schools (3)**

The course, based on research and theory, will serve as a model of secondary school individualized instruction and is designed for both teaching and administrative personnel. Macro concepts such as the Model Schools Project, IGE procedures for individualization, I/D/E/A theories of individualization, and other models of individualized instruction may be chosen for individual concentration. Teachers will focus on learning packages, learning contracts, learning centers, audio tutorial teaching, the Keller Plan, independent study, minicourses, and other techniques of individualization.

**D450 Problems of Teaching English in the Secondary School (3)**

A review of recent developments in the teaching of secondary English. Special attention is given to research involving instructional problems in urban and suburban schools. The course is designed for teachers, department heads, and supervisors in secondary English programs.

**D452 Problems of Teaching Social Studies in the Secondary Schools (3)**

A review of recent developments in the teaching of secondary school social studies. Special attention is given to research and scholarship involving instructional and curricular problems, especially in the metropolitan St. Louis area. Emphasis is placed upon development of effective materials, techniques, and resources. The course is designed primarily for teachers and supervisors in secondary school social studies programs.

**D470 In-Service Course in Secondary Education (3)**

This course is designed to operate with an individual school district and is related to problems of secondary education viewed from the standpoint of that specific district. This course is specially tailored to a particular situation.

## Behavioral Studies

### Counselor Education

#### 360 Principles and Procedures for Student Personnel Work (3)

Student personnel work in educational institutions, objectives of student personnel work, certain pertinent techniques.

#### 362 Occupational and Education Information (3)

Nature, use of occupational and educational information. Characteristics, requirements of occupations and training opportunities.

#### G400 Problems (1-10)

#### G401 Principles and Procedures of Student Personnel Work (3)

Student personnel work in educational institutions. Objectives of student personnel work, certain pertinent techniques.

#### G404 Individual Inventory (3)

Prerequisites: Education G427, \*G432. Uses of educational and psychological appraisal techniques in counseling. Develops counselor's abilities in assisting clients toward self-awareness through the use of test and non-test data. Ethical practices in the use of tests and the maintenance of personnel records are stressed.

#### G407 Counseling Methods (3)

Counseling as a professional field; process of counseling; counseling for educational, occupational, social, personal adjustment.

#### G408 Occupational and Educational Information (3)

Nature and use of occupational and educational information. Characteristics and requirements of occupations and training opportunities. Process of vocational choice.

#### G409 Vocational Choice Theory and Applications (3)

Emphasis on current theories of vocational development and their application in practice. Includes evaluation of interest, aptitude and ability tests significantly related to vocational development.

#### G410 Seminar (3-10)

#### G412 Group Procedures in Counseling (3)

Emphasis on a survey of theory and research in group structure and processes. Students are expected to participate in an intensive group experience and conduct a group themselves under the instructor's supervision.

#### G415 Guidance Practicum (3)

Prerequisite: Consent of instructor. Supervised practice in counseling.

#### G416 Guidance Practicum II (3)

Prerequisite: Education G415 and/or consent of instructor. Supervised practice in counseling.

#### G441 Student Personnel Work in Higher Education (3)

A survey course in student personnel administration with an emphasis on understanding the college student and learning ways to meet both his academic and non-academic needs.

### Educational Psychology

#### 221 Growth and Development (3) (W)

Comprehensive study of chronological age norms and the process of growth and development throughout the entire life span. There will be special emphasis on childhood, adolescence, and senescence.

#### 302 The Psychology of Teaching and Learning (3) (F, W, S)

Prerequisite: Education 101, Psychology 170 or 171, and admission to the School of Education. Application of the principles of psychology to an understanding of the dynamics of teaching behavior and learning behavior. Involves both theoretical and practical approaches to analysis of the learning environment of the school. Required of all who are preparing to teach.

#### A400 Problems (1-10)

#### A405 The Psychology of Education (3)

An advanced course covering the entire field of educational psychology.

#### A407 Psychology of the Elementary School Child (3)

The application of educational psychology to problems of teaching in the elementary school.

#### A408 The Psychology of Adolescence (3)

A critical psychological analysis of studies and investigation of the various aspects of adolescence.

#### A410 Seminar (1-10)

#### A420 Behavioral Analysis of Human Learning (3)

Prerequisite: Graduate standing. A course in the principles of human learning and the technology of behavior modification, from the perspective of the teaching and counseling professions. Emphasis is placed on its application for school learning and behavior problems and social behavioral patterns in a variety of appropriate counseling settings.

#### G406 Mental Hygiene (3)

Psychology of mental health. Emphasizes normal personality, improved self-management.

**Evaluation and Measurement****310 Interpretation of Educational Tests and Measurements (3)**

A study of the principles of psychometrics with emphasis upon the classroom interpretation of group tests of intelligence and achievement. Required of all majors in special education.

**331 Classroom Measurement and Evaluation I (3)**

Tests and measurements for the classroom. Basic measurement principles; test planning; construction and use of selection type tests; supply type tests and performance tests; item analysis procedures; methods of summarizing test scores, determining derived scores and norms; and pupil evaluation.

**G431 Classroom Measurement and Evaluation II (3)**

Prerequisite: Education 331 or equivalent is strongly recommended. Descriptive statistical procedures, norms, and correlations; reliability, error or measurement and validity; measurement of aptitude, achievement, interests and attitudes, and personal-social adjustment.

**G432 Educational and Psychological Measurement (3)**

Prerequisite: Education G427. General theory of measurement; interpreting test data; derived scores; theory of psychological tests; reliability and validity; measurement of achievement and aptitude, interests and attitudes, and personal-social adjustment.

**G433 Individual Intelligence Testing (3)**

Prerequisite: A course in group testing. Study of the Stanford-Binet Scale and other individual tests of intelligence. Practice in administering and interpreting the tests.

**Physical Education****102 Analysis and Teaching of Aquatic Sports (3) (F)**

Prerequisite: Consent of instructor. Study and performance of aquatic skills. Particular emphasis on safety and instructional techniques leading to the Water Safety Instructor's Certificate.

**103 Analysis and Teaching of Social Dance (3) (F)**

Prerequisite: Consent of instructor. The study and performance of social dance forms. Particular emphasis will be given to contemporary American square dance, international folk dance, and American and Latin ballroom dances.

**104 Analysis and Teaching of Gymnastics (3) (W)**

Prerequisite: Consent of instructor. The study of selected gymnastic movement. Emphasis will be given to teaching skills and techniques.

**105 Analysis and Teaching of Team Sports (3) (W)**

Prerequisite: Consent of instructor. The study and

performance of selected team sports. Particular emphasis will be given to skill analysis, strategy, and teaching of basketball, soccer, volleyball, field hockey, baseball, softball, and flag football.

**106 Analysis and Teaching of Lifetime Sports (3) (F)**

Prerequisite: Consent of instructor. Study and performance of selected lifetime sports. Particular emphasis will be given to skill analysis, strategy, and teaching of badminton, tennis, golf, bowling, and archery.

**108 Clinical Experience-Elementary School Physical Education (3) (W)**

Prerequisite: Education 155. Early professional preparation in elementary school physical education process and practice. Seminar precedes and accompanies clinical experience.

**109 Clinical Experience-Secondary Physical Education (3) (W)**

Prerequisite: Consent of instructor. Supervised experience in junior or senior high physical education programs. Seminar precedes and accompanies clinical experience.

**110 Elements of Health Education (3) (F, W, S)**

Prerequisite: Education 101 and admission to the School of Education. Basic school health for teachers. Considers health as it relates to the school and the child.

**155 Physical Education Activities in the Elementary School (3) (F, W, S)**

Objectives of physical education for the elementary school child with applications of choice of activities, organization of program, theory, practices.

**159 Clinical Experience in Youth Sport Programs (3) (F)**

Prerequisite: Consent of instructor. Supervised clinical experience in youth sport programs. Seminar precedes and accompanies clinical experience.

**200 Human Anatomy and Physiology (4) (F)**

Prerequisite: Biology 1 and 3, Chemistry 1. Study of the basic aspects of human anatomy and physiology and their relationship to concepts in sport and physical activity. Two hours laboratory per week.

**202 Sports Medicine (3) (F)**

Prerequisite: Education 200. A study of the medical supervision of sports participants, training, prevention and care of injuries. Course grants Red Cross First Aid Certificate.

**203 Kinesiology (3) (W)**

Prerequisite: Education 200. A study of the biomechanics of human motion with particular application to performance in sport activities.

**204 Physiology of Human Exercise (3) (W)**

Prerequisite: Education 200. A study of the physiological effects of human exercise and sport activities upon the human body; exercise metabolism, work and fatigue; development of strength and flexibility; and cardiorespiratory effects of exercise.

**205 Psychology of Sport (3) (F)**

Prerequisite: Psychology 1, 2, and 170, or 171. A study of the following aspects of psychology as they influence performance in sport and physical activity; learning, retention, transfer, practice, motivation, anxiety, stress, relaxation, and fatigue.

**206 Sociology of Sport (3) (W)**

Prerequisite: Sociology 1 or 10. Study of sport in the socio-cultural process of school and society.

**207 History and Philosophy of American Physical Education and Sport (3) (F)**

Prerequisite: Junior standing. A chronological study of the role of sport in American society and the development of physical education as a profession. Of particular interests will be the effect of religion, philosophy, economics, politics, and education upon physical education and sport.

**210 Special Topics in Physical Education (1-3)**

Prerequisite: Consent of instructor. Independent study through readings, reports, field study, or research.

**214 Physical Growth and Motor Development (3)**

Prerequisite: Psychology 170 and Education 155. Examination of physical growth and motor development of the human being from infancy through pre-adolescence. Emphasis on evaluative tools, techniques, and studies of research findings. Laboratory and field experience for observation of infants and children. Participation in practical development of experimental environment that is to facilitate neuropsychological competency of pre-school aged children. Elective course suggested for students of early childhood, special education, elementary education, and physical education.

**216 Rhythm and Movement (3) (W)**

Prerequisite: Education 155. Exploration into locomotor, non-locomotor forms and expressive movement through rhythm for children. Implications for methodology in concept teaching for elementary educators.

**268 The Curriculum and Methods of Teaching Physical Education (3) (W)**

Prerequisite: Education 163 or 140. A study of the scope and sequence of the physical education courses in the school curriculum with emphasis on the selection and organization of materials and methods of instruction and evaluation. Attention is

also directed toward learning the techniques and research tools of the scholar in the field of physical education. To be taken concurrently with student teaching.

**Special Education****240 Education of the Mentally Retarded (3) (F, W, S)**

Prerequisite: Education 101, 313, 311, and admission to the School of Education. Methods and techniques of use in the education of children with mental retardation. Required of all who are preparing for certification in special education for mentally retarded.

**252 Elementary Student Teaching in Special Education (6) (F, W)**

Prerequisite: Education 240, Education 313, and admission to student teaching. Clinical experience in teaching special education classes in the elementary school under university and school supervision. Seminar accompanies classroom teaching experience.

**272 Secondary School Student Teaching in Special Education (6)**

Prerequisite: Education 240, 313, and admission to student teaching. Clinical experience in teaching special education classes in the secondary school under university and school supervision. Seminar accompanies classroom teaching experience.

**311 Introduction to Mental Retardation (3) (F)**

Prerequisite: Education 101, 313, and admission to the School of Education. An introductory course dealing with the characteristics, classification, and causes of the mentally retarded.

**312 Speech and Language Problems of Exceptional Children (3) (F)**

Prerequisite: Education 101, 313, and admission to the School of Education. Study of the problems associated with speech and language development and the techniques employed by classroom teachers to lessen these problems for children. Required for all majors in special education.

**313 The Psychology and Education of Exceptional Individuals (3) (F, W, S)**

Prerequisite: Psychology 170 or 171 or equivalent. The psychology and education of individuals with special problems and/or abilities. Survey of theories and strategies for the learning-teaching process and sources of assistance to educators and parents. Required in certification programs.

**390 Behavior Management (3) (F, W, S)**

Prerequisite: Education 313 and an appropriate introductory course in special education area of concentration. An in-depth exploration of various behavior control techniques that are particularly



applicable to exceptional children. Students will be required to conduct at least one behavior modification project with exceptional children.

**A432 Psychology of Exceptional Children (3)**  
An in-depth analysis of the unique psychological problems of exceptional children and youth. Current psychological theories and research emphasized.

**A433 Education of the Mentally Retarded (3)**  
A study of the psychological aspects of mental retardation with regard to etiology, intellectual capabilities, characteristics, personality structure. Application to learning theories with emphasis upon curricular approaches and materials. Administrative organization and structure for provision of services.

**E411 Problems in Mental Retardation (3)**  
Prerequisite: Permission of instructor. A study of learning characteristics, evaluation, teaching techniques, and methods and curriculum adaptations for the mentally retarded.

**E490 Introduction to Behavioral Disorders (3)**  
Prerequisite: \*Education A432. An advanced study of the pedagogical and sociological problems germane to behavioral disorders with particular emphasis on the application of current research findings to the solutions of these problems.

**E492 Education of Behaviorally Disordered Children (3)**  
Prerequisite: \*Education E490. A systematic study of modern educational practices for behaviorally disordered children. Methods and materials for educating behaviorally disordered children are stressed.

**E493 Learning Disabilities (3)**  
Prerequisite: Education A432. An advanced study of the pedagogical and theoretical problems germane to the area of learning disabilities with particular emphasis on the application of current research findings to the solutions of these problems.

**E494 Education of Children with Learning Disabilities (3)**  
Prerequisite: \*Education E493. A systematic study of modern educational procedures for children with learning disabilities. Methods and materials for educating children with learning disabilities are stressed.

**E495 Prescriptive Teaching of Exceptional Children (3)**  
Prerequisite: Education A432. Course will instruct teachers on how to develop and implement prescriptive educational programs for exceptional children and adolescents based upon available information. Students will become familiar with

prescriptive systems which will enable them to utilize sources of information for remedial and developmental needs.

**E496 Practicum in Special Education (3-6)**  
Prerequisite: Two courses in area of concentration. A supervised internship in educating exceptional children in a school setting or other appropriate site.

## Childhood Education

### Early Childhood Education

#### 314 Curriculum, Methods, and Materials for Early Childhood Education (3)

Curriculum development for preschool and early primary: writing and sequencing objectives, constructing activities and materials, and observing and recording child performance. Areas include visual and auditory skills, gross and fine motor, language and cognition, as well as affective behavior. Individualization according to learning style, rate, and experiential background is included.

#### 315 Principles of Early Childhood Education (3)

Prerequisite: Education 101 and 302. A study of values and basic principles underlying good schools for young children, organizing the learning environment, developing the curriculum and units of work. An investigation of good learning situations for pre-school and primary children.

#### 316 Creative Experiences for Young Children (3) (F, W, S)

Prerequisite: Education 315 and completion of humanities requirements in general education. A study of and experiences with materials, techniques and resources for promoting effective cognitive and motor development through the use of art media, songs and rhythms, play and creative dramatics.

#### 317 Exploring the Physical World with Young Children (3)

Prerequisite: Education 315 and completion of science requirements in general education. A study of and experiences with materials, techniques, and resources for broadening the child's awareness and understanding of science.

#### 318 Exploring the Social World with Young Children (3)

Prerequisite: Education 315 and completion of social science requirements in general education. A study of and experience with materials, techniques, and resources for furthering the child's mastery of the skills of communication; his understanding of people, social roles, society, and various cultures; his ability to develop satisfying relationships with peers and adults.

#### 319 Parent and Community Resources in Early Childhood Education (3)

Prerequisite: Admission to School of Education or graduate status. Competencies for working with parents and community agencies will be developed through a study of community and community resources. Procedures for parent participation and use of service agencies in the education of all young children, including those with special needs, will be examined.

#### 336 The Acquisition of Mathematical Concepts (3)

Prerequisites: Education 153 (or equivalent) or consent of instructor. Applications of the major theorists (Gruner, Gagne, Piaget, etc.) to mathematics for children of mental ages 3-8. Considerations suggested by research and implications in the areas of logical thinking, pre-number ideas, geometry, topology, problem solving, and arithmetical operations.

#### E470 Foundations of Preschool Education (3)

Prerequisite: A course in child psychology or equivalent. A study of the various types of early childhood programs and the philosophy upon which they are based. Attention will also be directed to the implementation of such programs, problems of parent involvement, and the social environment of the children.

### Elementary Education

#### 2 Effective Reading and Study Skills (2) (F, W)

Designed to increase reading rate and comprehension and to develop study techniques appropriate to the purpose and difficulty of materials. Use is made of mechanical pacer, comprehension tests, vocabulary materials, and lecture demonstrations. No credit toward a degree.

#### 137 Elementary School Music (2) (F, W)

(Same as Music 137) Prerequisite: Music 136 or consent of department. The role of the classroom teacher in the development of the elementary school general music program; selection of music, demonstration and practice of methods, study of resources. This course will not apply toward requirements for a music major.

#### 139 Art Activities for Elementary Schools (3) (F, W)

(Same as Art 139) A study of art principles; provides laboratory experience with various media and materials. Stresses curriculum planning and developments of the elementary school program in art.

#### 140 Elementary School Organization, Management and Techniques of Teaching (3) (F, W, S)

Prerequisite: Education 101 and admission to the School of Education. Organization and management of the elementary classroom emphasizing social factors affecting elementary schools. Formal and informal organizations in the school relating to administrative-teacher-pupil interactions and teacher-learning environment and general techniques of teaching.

#### 150 Children's Literature (3) (F, W, S)

Prerequisite: Education 101 or equivalent and admission to the School of Education. A course designed to provide a knowledge of the various types of children's literature, including comics, television, and films; criteria for selecting and evaluating reading and viewing material.

**151 Teaching of Science in the Elementary School (3) (F, W, S)**

Prerequisite: Education 140 and completion of science requirements in general education. A study of elementary school science emphasizing the current social studies curricular content, methods of teaching, and instructional materials. Analysis of forces affecting objectives, materials, and teaching techniques.

**152 Teaching of Social Studies in the Elementary School (3) (F, W, S)**

Prerequisite: Education 140 and completion of social science requirements in general education. A study of elementary school social studies emphasizing the current social studies curricular content, methods of teaching, and instructional materials. Analysis of forces affecting objectives, materials, and teaching techniques.

**153 Teaching Mathematics in the Elementary School (3) (F, W, S)**

Prerequisite: Education 140 and completion of mathematics requirements in general education. Organization and implementation of a modern elementary school mathematics program.

**251 Elementary School Student Teaching (6) (F, W)**

Prerequisite: Education 151, 152, 153, 325, and admission to student teaching. Clinical teaching experience in elementary school classrooms under university and school supervision. Seminar accompanies classroom teaching experience.

**257 Teaching Music in the Elementary School (3) (F)**

(Same as Music 257) Prerequisite: Music 112 and Education 101. For the music education major. A study of the elementary school music curriculum emphasizing the objectives, methods of teaching and staffing music classes, analysis of instructional materials and resources.

**325 Teaching Reading in the Elementary School (3) (F, W, S)**

Prerequisite: Education 140, educational psychology, and junior standing. Methods and materials of improving word perception, vocabulary, comprehension, and interests in independent reading.

**327 Teaching Reading in the Inner City (3) (F, W)**

Prerequisite: Education 140 and senior standing. A systematic study of the problems of teaching reading and related language arts in ghetto schools. Attention is given to the ways in which the selection of materials and methodology of teaching reading to inner city children is influenced by their physical and psychological needs, their experience backgrounds, their spoken language patterns, their culture heritage, and the sociology of their environment.

**350 Elementary School Curriculum (3)**

Prerequisite: Education 140. Study of modern education with regard to objectives, content, methods in elementary school curriculum.

**353 Advanced Methods in Elementary School Mathematics (3)**

Prerequisite: Education 153 and consent of instructor. Review, evaluate, develop, and provide classroom trial of instructional components prepared for teaching mathematics. The course will develop greater depth of preparation in elementary program content, programs for exceptional children, and curricular extensions such as transformational geometry, rational numbers, and intuitive algebra.

**354 Teaching the Language Arts in the Elementary School (3) (F, W, S)**

Prerequisite: Education 140 or equivalent. This course will involve a study of methods and materials essential for implementing a modern language arts program in the elementary school. Emphasis will be placed on listening, speaking, and writing skills development.

**369 The Analysis and Correction of Reading Problems in the Classroom (3) (F, W, S)**

Prerequisite: Education 325, 365, or equivalent. A study of causes of reading difficulties and procedures that may be used to analyze and correct them in the group setting.

**372 Field Study in Elementary Education (13)****E400 Problems (1-10 arranged)**

Selected problems to meet the needs of individual students.

**E402 Supervision of Clinical Experiences in Teacher Education (3)**

Prerequisite: Teaching experience and consent of instructor. A consideration of the clinical phase of the teacher education program, with special emphasis on student teaching. Examination of role responsibilities and supervisory practices. Study of professional literature for research findings, theoretical formulation, and recent developments in the field.

**E404 Elementary School Supervision (3)**

Organized to study such problems in field of supervision as will meet needs of superintendents, principals, special supervisors.

**E405 Elementary School Curriculum (3)**

Survey methods of modern educational thought with regard to objectives, content, methods in elementary school curriculum.

**E406 The Elementary Teacher: Humanizing Decision Making (3)**

Instructional decision-making skills will be developed through the analysis of problem situations. Through the implementation of decision-making models, students will analyze concrete classroom problems, consider alternative solutions, plan and evaluate subsequent outcomes.

**E407 Curriculum Construction in Elementary Schools (3)**

A study of the elementary curriculum with regard to selection of objectives and content and to provisions for curricular change.

**E408 Curricular Implementation in the Elementary School (3)**

Prerequisite: Education E407. Culminating experience for curricular project developed in Education E407. Course will include procedures and techniques for curricular design implementation in the field.

**E410 Seminar (1-10)****E415 Developmental Reading (K-13) (3)**

Prerequisites: 325, 365, or equivalent. Designed to update the classroom teacher's skill in reading instruction. Study of basic reading instruction at all grade levels with special emphasis on current instructional programs, innovative approaches to reading instruction, basic teaching techniques, commercial reading materials, and recent research findings which have a bearing on methodology.

**E421 Environmental Studies for Elementary Teachers (3)**

Activity-oriented training in developing environmental awareness, field and/or laboratory skills and techniques, and the use of elementary environmental curricula. Materials and activities appropriate for one's students and locale will be developed.

**E425 Problems and Research in Teaching Elementary School Reading (3)**

Prerequisite: Education 325 or equivalent. A systematic study of research as it focuses on the problems of teaching reading in the elementary school. Attention is given to innovations in the field.

**E442 Problems of Teaching Social Studies in the Elementary School (3)**

A classroom-oriented study of curricular and instructional problems encountered in social studies. Emphasis is placed upon development of materials, techniques, and resources.

**E443 Problems of Teaching Arithmetic in the Elementary School (3)**

A study of the mathematics program in the elementary school from the viewpoint of goals, content, techniques, and evaluation.

**E450 Problems of Teaching the Language Arts (3)**  
Procedures used in teaching integrated language arts in elementary schools.

**E451 Problems and Research in Teaching Elementary School Science (3)**

Prerequisite: Eight hours of science, Education 151 and A405. A thorough examination of research related to elementary school science instruction with particular emphasis on innovative programs. Includes methods of investigation and techniques for interpreting the professional literature.

**E452 Problems and Research in Teaching Elementary School Social Studies (3)**

Prerequisite: Education E442. An advanced study of pedagogical problems germane to social studies education with particular emphasis on application of research findings to the solution of classroom problems.

**E453 Problems and Research in Teaching Elementary School Mathematics (3)**

Prerequisite: Education E443. A thorough examination of research related to recurrent problems in elementary school mathematics instruction, as well as current problems arising within modern programs. Includes methodology appropriate to investigation of such problems and techniques for assessment of the literature.

**E455 Problems and Research in Elementary School Language Arts (3)**

Prerequisite: Education G431, E450, and six hours of English. A systematic study of research in teaching speaking, listening, written composition, handwriting, spelling, and linguistics as it focuses on the problems of teaching these skills in the elementary school. Attention is given to innovations in the field.

**E466 Children's Literature I: Survey and Analysis (3)**

A survey of children's literature published in the last ten years. Special emphasis will be placed on the relationship between children's literature and contemporary issues of society. Students will experience the materials themselves rather than reading *about* books. In addition, students will begin to study the literary elements that make literature interesting and meaningful for children.

**E467 Children's Literature II: Selection and Functions (3)**

Prerequisite: Education E466. A continuation of E466. The study of the literary elements that make literature interesting and meaningful for children will be completed. Further emphasis will focus on the application of trade books for children as resources in school curricula planning.

**E469 Clinical Diagnosis and Treatment of Reading Disabilities (3)**

Prerequisite: A graduate course in reading and in measurement or statistics, etiology of specific reading disability; procedures that are used to diagnose and treat in the clinical setting.

**E479 Clinical Methods in Child Study I (3)**

Prerequisite: Education E469 and G433. Clinical experience in diagnosing learning problems, especially reading disability, in school children.

**E489 Clinical Methods in Child Study II (3)**

Prerequisite: Education 479. Clinical experience in applying remedial procedures to school children with learning problems, especially reading disability.

**Administration/  
Faculty**

**Administration**

**Board of Curators**

**Terms Expire January 1, 1977**

John H. Dalton, President  
Kennett, Missouri

Irvin Fane  
Kansas City, Missouri

Pleasant R. Smith  
Mexico, Missouri

**Terms Expire January 1, 1979**

Barbara Berkmeier  
St. Louis, Missouri

Van O. Williams, Vice President  
Liberty, Missouri

Howard B. Woods  
St. Louis, Missouri

**Terms Expire January 1, 1981**

C. R. Johnston  
Springfield, Missouri

Wallace R. Stacey, M.D.  
Independence, Missouri

Rex Z. Williams  
Rolla, Missouri

**All-University**

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President

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President Emeritus

Dr. A. G. Unklesbay  
Vice President for Administration

R. H. Bezoni  
Vice President for Finance and Treasurer

Dale O. Bowling  
Vice President for Business Management

Ardath Emmons  
Vice President for Research

Carl N. Scheneman  
Vice President for Extension

Melvin D. George  
Vice President for Academic Affairs

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University of Missouri-Columbia

Dr. James C. Olson  
University of Missouri-Kansas City

Dr. Raymond Bisplinghoff  
University of Missouri-Rolla

Dr. Arnold B. Grobman  
University of Missouri-St. Louis

**University of Missouri-Saint Louis****Administrative Officers***Chancellor's Office*

Arnold B. Grobman, Ph.D.  
Chancellor

(to be appointed)

Vice Chancellor for Academic Affairs

Blanche M. Touhill, Ph.D.  
Associate Dean of Faculties

Everett Walters, Ph.D.  
Vice Chancellor for Community Affairs

John P. Perry, M.S.  
Vice Chancellor for Administrative Services

John D. Phillippe  
Assistant Vice Chancellor for Administrative  
Services

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Dean

M. Thomas Jones, Ph.D.  
Associate Dean

Mark Nugent, M.S.  
Assistant Dean

Robert L. Smith, B.D.  
Assistant Dean

Frederick C. Brechler, Ph.D.  
Assistant Dean for Continuing  
Education-Extension

Goble Jessup, B.S.  
Assistant to the Dean

*School of Business Administration*

Emery C. Turner, D.B.A.  
Dean

Donald H. Driemeier, D.B.A.  
Associate Dean

Sam R. Lloyd, M.B.A.  
Assistant Dean for Continuing  
Education-Extension



*School of Education*

William L. Franzen, Ph.D.  
Dean

Robert F. Gard, Ed.D.  
Assistant Dean

Hans C. Olsen, Ed.D.  
Assistant Dean

Angelo H. Puricelli, Ph.D.  
Assistant Dean for Continuing  
Education-Extension

*Evening College*

Joy E. Whitener, Ed.D.  
Dean

Harry Gaffney, Ph.D.  
Assistant Dean

Donald G. Bowling, M.S.  
Assistant Dean

*Graduate School*

Thomas E. Jordan, Ed.D.  
Dean, Director of Research

Alan F. Berndt, Ph.D.  
Assistant Dean, Assistant Director of Research

William P. Heinbecker, M.S.  
Director of Computer Center

*Institutional Research*

Richard E. Dunlap  
Director

*Libraries*

Robert C. Miller, M.A.  
Director

*Admissions*

Hilbert E. Mueller, Ed.D.  
Director

*UNITED-Special Services*

Mary C. Brewster, M.S.W.  
Director

**Community Affairs**

Donald L. Constantine, B.J.  
Director of Public Information

Blair K. Farrell, B.A.  
Director of University Relations

Kathy Head, B.A.  
Director of Alumni Activities

Conney M. Kimbo, Ph.D.  
Dean of Student Affairs

Dennis E. Donham, M.Ed.  
Assistant Dean of Student Affairs

Sylvia Lang, J.D.  
Affirmative Action Officer

Samuel J. Marwit, Ph.D.  
Director of Counseling

Charles G. Smith, M.A.  
Director of Athletics

Robert W. Thomas, M.A.  
General Manager of KWMU Radio

Wendell Smith, Ph.D.  
Associate Dean for Continuing  
Education-Extension

**Administrative Services**

Paul S. Czervinske, B.A.  
Personnel Officer

William C. Edwards, M.S.  
Director of University Center

Paul Eisea  
Superintendent of Physical Plant

Thomas E. Kitta  
Acting Manager of University Bookstore

Bill Moody, M.S.  
Manager of Finance

College of Arts and Sciences

Following is a listing of faculty by department or field within the College of Arts and Sciences, School of Business Administration, and School of Education. Faculty members designated by one asterisk are members of the graduate faculty.

**Administration of Justice**

Gordon E. Misner, Chairperson, Professor\*  
D. Crim., University of California

Henry Burns, Jr., Visiting Associate Professor  
Ph.D., Southern Illinois University-Carbondale  
Associate Professor, Indiana University

Isaac Gurman, Associate Professor  
M.A.

Hon. Theodore McMillian, Associate Professor  
J.D., St. Louis University

David L. Smith, Assistant Professor and Extension  
Coordinator  
J.D., University of Minnesota

Robert H. Branom, Assistant Professor  
J.D., Washington University

Alphonso Jackson, Assistant Professor  
J.D., Washington University

Sylvia J. Lang, Assistant Professor  
J.D., Howard University

Brendan Ryan, Assistant Professor  
LL.B., University of Missouri-Columbia

Jack Seitzinger, Assistant Professor  
Ph.D., Wayne State University

Ben Brashears, Instructor  
M.A.

J. Noel Criscuola, Instructor  
M. Crim.

David O. Fischer, Instructor  
LL.B.

Charles Mann, Instructor  
M.S.

Herman V. Wood, Instructor  
M.S.

Harry Mellman, Lecturer  
Ph.D., University of Illinois

**Biology**

Martin Sage, Chairperson, Associate Professor\*  
Ph.D., Nottingham University

Robert S. Bader, Dean, College of Arts and Sciences\*  
Professor  
Ph.D., University of Chicago

Arnold B. Grobman, Chancellor, Professor\*  
Ph.D., University of Rochester

Frank H. Moyer, Professor\*  
Ph.D., The Johns Hopkins University

Peter H. Raven, Professor (Non-Regular)  
Ph.D., University of California-Los Angeles

Monroe W. Strickberger, Professor\*  
Ph.D., Columbia University

Jacques Delente, Associate Professor (Non-Regular)  
Docteur Ingenieur, Caen

Theodore H. Fleming, Associate Professor\*  
Ph.D., University of Michigan

Harvey P. Friedman, graduate coordinator, Associate  
Professor\*  
Ph.D., University of Kansas

Lawrence D. Friedman, Associate Professor\*  
Ph.D., University of Wisconsin

Donald E. Grogan, Associate Professor\*  
Ph.D., University of Missouri-Columbia

John E. Averett, Assistant Professor\*  
Ph.D., University of Texas-Austin

Thomas B. Croat, Assistant Professor (Non-Regular)  
Ph.D., University of Kansas

William G. D'Arcy, Assistant Professor (Non-Regular)  
Ph.D., Washington University

Albert Derby, Assistant Professor\*  
Ph.D., City University of New York

Peter Goldblatt, Assistant Professor (Non-Regular)  
Ph.D., University of Cape Town, South Africa

Charles R. Granger, Assistant Professor\*  
Ph.D., University of Iowa

James H. Hunt, Assistant Professor\*  
Ph.D., University of California-Berkeley

John E. Ridgway, Assistant Professor\*  
Ph.D., University of Texas-Austin

Lon A. Wilkens, Assistant Professor\*  
Ph.D., Florida State University

Ann A. Wilke, Instructor  
M.S., University of Illinois

Dimple J. Jud, Assistant Instructor  
A.B., University of Missouri-St. Louis

## College of Arts and Sciences

**Chemistry**

Robert W. Murray, Chairperson, Professor\*  
Ph.D., Yale University

Alan F. Berndt, Professor\*  
Ph.D., California Institute of Technology

M. Thomas Jones, Professor\*  
Ph.D., Washington University

Charles W. Armbruster, Associate Professor\*  
Ph.D., Washington University

Lawrence Barton, Associate Professor\*  
Ph.D., University of Liverpool

Eric Block, Associate Professor\*  
Ph.D., Harvard University

Jordan Bloomfield, Adjunct Associate Professor  
Ph.D., Massachusetts Institute of Technology

James S. Chickos, Associate Professor\*  
Ph.D., Cornell University

Eugene R. Corey, Associate Professor\*  
Ph.D., University of Wisconsin

Joyce Y. Corey, Director of Graduate Studies,  
Associate Professor\*  
Ph.D., University of Wisconsin

Joseph Feder, Adjunct Associate Professor  
Ph.D., Illinois Institute of Technology

David L. Garin, Associate Professor\*  
Ph.D., Iowa State University

Harold H. Harris, Associate Professor\*  
Ph.D., Michigan State University

David W. Larsen, Associate Professor\*  
Ph.D., Northwestern University

Robert I. Stearns, Adjunct Associate Professor  
Ph.D., Tulane University

Rudolph E. K. Winter, Associate Professor\*  
Ph.D., The Johns Hopkins University

Kenneth W. Barnett, Assistant Professor\*  
Ph.D., University of Wisconsin

John L. Gutweiler, Visiting Assistant Professor  
Ph.D., St. Louis University

Barry L. Kalman, Visiting Assistant Professor  
Ph.D., Purdue University

Jane A. Miller, Assistant Professor\*  
Ph.D., Tulane University

Robert E. Penn, Assistant Professor\*  
Ph.D., Rice University

Robert A. Rouse, Assistant Professor\*  
Ph.D., Northwestern University

Gregory Bearman, Research Associate  
Ph.D., Brandeis University

Frank E. Stary, Research Associate  
Ph.D., University of Cincinnati

**Staff**

Robert Cabaniss, Glassblower

Jack L. Coombs, Laboratory Stores Manager  
B.A.

William Garrison, Electronics Technician

Norman Windsor, Electronics Technician

**Economics**

Elizabeth M. Clayton, Chairperson, Associate Professor\*  
Ph.D., University of Washington

Robert Loring Allen, Professor\*  
Ph.D., Harvard University

Joseph P. McKenna, Professor\*  
Ph.D., Harvard University

Hugh O. Nourse, Professor\*  
Ph.D., University of Chicago

Thomas R. Ireland, Associate Professor\*  
Ph.D., University of Virginia

William E. Mitchell, Associate Professor\*  
Ph.D., Duke University

Donald Phares, Associate Professor\*  
Ph.D., Syracuse University

Herbert D. Werner, Associate Professor\*  
Ph.D., University of California, Berkeley

Peter J. Grandstaff, Assistant Professor\*  
Ph.D., Duke University

Sharon Levin, Assistant Professor\*  
Ph.D., University of Michigan

Emilio Pagoulatos, Assistant Professor\*  
Ph.D., Iowa State University

Patricia M. Quick, Assistant Professor\*  
Ph.D., Harvard University

Robert L. Sorensen, graduate coordinator, Assistant Professor\*  
Ph.D., Virginia Polytechnic Institute

James F. Veatch, Assistant Professor\*  
Ph.D., University of Illinois

Katherine Walker, Assistant Professor\*  
Ph.D., University of California-Davis

**English**

B. Bernard Cohen, Chairperson, Professor\*  
Ph.D., Indiana University

Charles T. Dougherty, Professor\*  
Ph.D., University of Toronto

William C. Hamlin, Professor\*  
Ph.D., University of Missouri-Columbia

Spencer M. Allen, Associate Professor of Journalism,  
Director, Urban Journalism Center  
B.J.

Marcia A. Dalbey, Associate Professor\*  
Ph.D., University of Illinois

Bruce L. Liles, graduate coordinator, Associate Professor\*  
Ph.D., Stanford University

Eugene B. Murray, Associate Professor\*  
Ph.D., Columbia University

John T. Onuska, Jr., Associate Professor\*  
Ph.D., Harvard University

James E. Tierney, Associate Professor\*  
Ph.D., New York University

Jane Williamson, Associate Professor\*  
Ph.D., Bryn Mawr College

Peter Wolfe, Associate Professor\*  
Ph.D., University of Wisconsin

Josephine M. Barry, Assistant Professor\*  
Ph.D., University of California-Los Angeles

Denny Bettisworth, Director of Theatre, Assistant Professor of Speech Communication\*  
Ph.D., University of Georgia

David Carkeet, Assistant Professor\*  
Ph.D., Indiana University

Richard Cook, Assistant Professor\*  
Ph.D., University of Michigan

James Fay, Technical Director of Theatre, Assistant Professor of Speech Communication  
M.F.A.

Jerome Grollman, Visiting Assistant Professor  
M.H.L., Hebrew Union College

Curt H. Hartog, Assistant Professor\*  
Ph.D., University of Illinois

## College of Arts and Sciences

Charles Larson, Assistant Professor\*  
Ph.D., Indiana University

Winslow S. Rogers, Assistant Professor\*  
Ph.D., Harvard University

Christine M. Roman, Assistant Professor\*  
Ph.D., University of Minnesota

Donald Shields, Director of Forensics, Assistant  
Professor of Speech Communication\*  
Ph.D., University of Minnesota

Adam Casmier, Visiting Instructor  
M.A., University of Notre Dame

Michael Castro, Instructor  
M.A., Washington University

Ellie Chapman, Instructor  
M.A., Murray State University

Janet Cuenca, Instructor  
M.A., University of Michigan

Dorothy Doyle, Instructor  
M.A., Yale University

Sally Jackoway, Instructor  
M.A., Washington University

Diane Kurtz, Instructor  
Ph.D., University of Illinois

Jane Parks-Clifford, Instructor  
M.A., University of Missouri-Columbia

Judith Pearson, Instructor  
M.A., Wayne State University

Barbara Relyea, Instructor  
M.A., Washington State University

Gene Roelofs, Instructor  
Ph.D., Washington University

Kathleen Sala, Instructor of Speech Communication  
M.A., St. Louis University

Janet Sanders, Instructor of Speech Communication  
M.A., University of Maryland

Howard Schwartz, Instructor  
M.A., Washington University

Jeanne Sherrill, Instructor  
M.Ed., University of Missouri-St. Louis

Kim Sindel, Instructor  
M.A., Washington University

**Fine Arts**

Arnold Perris, Chairperson, Associate Professor of  
Music\*  
Ph.D., Northwestern University

**Art**

Marie Larkin, Professor  
Ed.D., Columbia University

Sylvia Walters, Associate Professor  
M.F.A., University of Wisconsin-Madison

Carole Kaufmann, Assistant Professor\*  
Ph.D., University of California-Los Angeles

Michael Taylor, Assistant Professor\*  
Ph.D., Princeton University

Mary Wilson, Assistant Professor\*  
Ph.D., Northwestern University

Marie Schmitz, Instructor  
M.A.

Fred Nelson, Instructor  
M.F.A.

Cissy Pao, Instructor  
M.F.A.

Jean Tucker, Lecturer  
M.A.

**Music**

Kenneth E. Miller, Professor\*  
Ph.D., Northwestern University

Ronald Arnatt, Associate Professor\*  
D.M., Westminster Choir College

Warren T. Bellis, Associate Professor\*  
D.M.A., University of Michigan

Evelyn Mitchell, Associate Professor\*

Gertrude Ribla, Associate Professor\*

Martin Behnke, Assistant Professor\*  
Ph.D., University of Colorado

Darrell Berg, Assistant Professor  
Ph.D., State University of New York-Buffalo

Kenneth Billups, Assistant Professor  
M.M.

Leonard Ott, Assistant Professor  
Ph.D., Michigan State University

Fred Willman, Assistant Professor\*  
Ph.D., University of North Dakota

Darwyn Apple, Instructor (Violin)\*\*  
M.M.

Jacob Berg, Instructor (Flute)\*\*

Robert Ceccarini, Instructor (Trumpet)

Aleksander Ciechanski, Instructor (Cello)\*\*

Hubert Drury, Instructor (Piano)  
M.M.

Gerald Fleming, Instructor (Viola)\*\*

Kaid Friedel, Instructor (Horn)\*\*

Jan Gippo, Instructor (Flute)\*\*

Carolyn Hadfield, Instructor  
M.M.

Richard Holmes, Instructor\*\*  
B.S.

John Kasica, Instructor, (Percussion)\*\*  
B.M.

Mary Kershman, Instructor  
M.M.E.

Henry Loew, Instructor (String Bass)\*\*

John MacEnulty, Instructor (Tuba)\*\*

Malcolm McDuffee, Instructor (Trumpet)\*\*  
M.M.

James Meyer, Instructor (Saxophone)\*\*  
B.S.

Robert Mottl, Instructor (Bassoon)\*\*

Richard O'Donnell, Instructor (Percussion)\*\*

Sara Pandolfi, Instructor  
B.M.

Roland Pandolfi, Instructor (Horn)\*\*

Max Rabinovitsj, Instructor (Violin)\*\*

Alan Rosenkoetter, Instructor (Guitar)  
B.S.

Bernard Schneider, Instructor (Trombone)\*\*  
B.M.

George Silfies, Instructor (Clarinet)\*\*

Gary Smith, Instructor (Trumpet)\*\*  
M.M.

Janis Smith, Instructor (Flute)\*\*  
B.M.E.

Michael Smith, Instructor (Guitar)  
M.M.

Mary Kay Stamper, Instructor  
M.A.

Larry Strieby, Instructor (Horn)\*\*

Thomas Stubbs, Instructor (Percussion)\*\*  
B.S.

Yuan Tung, Instructor (Cello)\*\*

Christine Ward, Instructor (Clarinet)\*\*  
M.A.

Richard Woodhams, Instructor (Oboe)\*\*

\*\*Member, Saint Louis Symphony Orchestra

## College of Arts and Sciences

**History**

Arthur H. Shaffer, Chairperson, Associate Professor\*  
Ph.D., University of California-Los Angeles

James D. Norris, Professor\*  
Ph.D., University of Missouri-Columbia

James Neal Primm, Professor\*  
Ph.D., University of Missouri-Columbia

Everett Walters, Dean of Faculties, Professor\*  
Ph.D., Columbia University

Roy Gene Burns, Jr., Associate Professor\*  
Ph.D., University of Missouri-Columbia

Walter Ehrlich, Associate Professor\*  
Ph.D., Washington University

Louis S. Gerteis, Associate Professor\*  
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Ph.D., University of Missouri-Columbia

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Ph.D., University of Wisconsin

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Ph.D., Harvard University

Richard W. Resh, Associate Professor\*  
Ph.D., University of Wisconsin

Blanche M. Touhill, Associate Dean of Faculties,  
Associate Professor\*  
Ph.D., St. Louis University

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Professor\*  
Ph.D., Duke University

Jerry Cooper, Assistant Professor\*  
Ph.D., University of Wisconsin

P. Corby Finney, Assistant Professor\*  
Ph.D., Harvard University

John Gillingham, Assistant Professor  
Ph.D., University of California, Berkeley

Steven Hause, Assistant Professor\*  
Ph.D., Washington University

Edward Paynter, Assistant Professor\*  
Ph.D., University of California-Berkeley

James L. Roark, Assistant Professor\*  
Ph.D., Stanford University

Steven W. Rowan, Assistant Professor\*  
Ph.D., Harvard University

Margaret L. Sullivan, Assistant Professor\*  
Ph.D., St. Louis University



**Mathematical Sciences**

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Head, Mathematics Section\*  
Ph.D., Harvard University

Edward Z. Andalafte, Associate Professor\*  
Ph.D., University of Missouri-Columbia

Raymond Balbes, Graduate Coordinator, Associate  
Professor\*  
Ph.D., University of California-Los Angeles

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Ph.D., St. Louis University

Gerald Peterson, Associate Professor, Head,  
Computer Science Section\*  
Ph.D., University of Utah

Alan L. Schwartz, Associate Professor\*  
Ph.D., University of Wisconsin

Jerrold Siegel, Associate Professor\*  
Ph.D., Cornell University

Grant V. Welland, Associate Professor, Head,  
Probability and Statistics\*  
Ph.D., Purdue University

Frederick Wilke, Associate Chairperson, Associate  
Professor, Head, Mathematics Education Section\*  
Ph.D., University of Missouri-Columbia

Allan Calder, Visiting Assistant Professor\*  
Ph.D., University of London

William Connett, Assistant Professor\*  
Ph.D., University of Chicago

Richard Friedlander, Assistant Professor\*  
Ph.D., University of California-Los Angeles

Walter L. Griffith, Jr., Assistant Professor\*  
Ph.D., Harvard University

Rangachary Kannan, Assistant Professor\*  
Ph.D., Purdue University

Pusparaj Kanungo, Assistant Professor\*  
Ph.D., State University of New York-Stonybrook

Jerome M. Katz, Assistant Professor\*  
Ph.D., Yale University

Katherine L. Monti, Assistant Professor\*  
Ph.D., University of North Carolina-Chapel Hill

Shlomo Vinner, Visiting Assistant Professor\*  
Ph.D., Hebrew University

Shirley Adams, Instructor  
M.A.

Michael Avitahl, Instructor  
M.S.

Thelma Balbes, Instructor  
M.A.

Sara Crews, Instructor  
M.A.

Steve Dibner, Instructor  
M.A.

Elena Eftimiu, Instructor  
M.S.

Toni Garrett, Instructor  
M.A.

Yin-hsin Ho, Instructor

Eric Moll, Instructor  
M.S.

Mark Nugent, Instructor  
M.S.

Richard Parsons, Instructor  
M.S.

Cynthia Siegel, Instructor  
M.S.

David Stevens, Instructor  
M.A.

Patricia Stevens, Instructor  
M.A.

James Thorpe, Instructor  
M.A.

## College of Arts and Sciences

**Modern Foreign Languages**

Ingeborg M. Goessl, Chairperson, Assistant Professor  
of German\*  
Ph.D., University of Kansas

**French**

Marcus Allen, Associate Professor\*  
Ph.D., University of Pittsburgh

Andrew Campagna, Assistant Professor-Evening  
Ph.D., Washington University

Roland A. Champagne, Assistant Professor\*  
Ph.D., Ohio State University

Sonja G. Stary, Assistant Professor\*  
Ph.D., University of Cincinnati

Ruth Antosh, Instructor  
M.A.

Roger Noel, Instructor  
M.A.

Dolores Richardson, Instructor  
M.A.

Barbara L. Sandmel, Instructor  
M.A.

Gail D. Stark, Instructor  
M.A.

Rita C. White, Instructor  
M.A.

Servane Autin, Assistant

Gerald Ezvan, Assistant

**German**

Alfred F. Goessl, Associate Professor\*  
Ph.D., Tulane University

Paul Hoffman, Assistant Professor  
M.A.

Albert Kalmar, Assistant Professor  
Ph.D., Washington University

Rolf Mueller, Assistant Professor  
Ph.D., University of Kansas

John Antosh, Instructor  
M.A.

Albert Camigliano, Instructor  
Ph.D., University of Wisconsin

Ingomar Robier, Assistant

**Italian**

Roger Noel, Instructor  
M.A.

**Russian**

Lydia Svast, Instructor  
M.A.

**Spanish**

Enrique Noble, Professor\*  
Ph.D., University of Havana

Anna Ashhurst, Associate Professor\*  
Ph.D., University of Pittsburgh

Francisco Carenas, Associate Professor\*  
Ph.D., University of Valencia

Henry Eliot Chenaux, Instructor  
M.A.

Luis F. Clay, Instructor  
M.A.

Julianne Dueber, Instructor-Evening  
M.A.

Nancy Ferrario, Instructor  
M.A.

Zayda M. Jung, Instructor  
M.A.

Michael J. Mahler, Director, Language Laboratory  
M.A.

Christopher Schmid, Instructor-Evening  
M.A.

**Philosophy**

John E. Parks-Clifford, Chairperson, Associate Professor\*  
Ph.D., University of California-Los Angeles

Peter Fuss, Professor\*  
Ph.D., Harvard

David A. Conway, Associate Professor\*  
Ph.D., Princeton University

Edward B. Costello, Associate Professor\*  
Ph.D., Northwestern University

James F. Doyle, Associate Professor\*  
Ph.D., Yale University

Robert M. Gordon, Associate Professor\*  
Ph.D., Columbia University

Ronald Munson, Associate Professor\*  
Ph.D., Columbia University

Paul R. Gomberg, Assistant Professor\*  
Ph.D., Harvard University

Henry L. Shapiro, Assistant Professor\*  
Ph.D., Columbia University

James H. Walters, Assistant Professor\*  
Ph.D., University of Wisconsin

David J. Griesedieck, Instructor  
M.A., Princeton University

**Physics**

John S. Rigden, Chairperson, Professor\*  
Ph.D., Johns Hopkins University

Corneliu Eftimiu, Professor\*  
Ph.D., University of Bucharest

Peter H. Handel, Graduate Coordinator, Professor\*  
Ph.D., University of Bucharest

Bob L. Henson, Associate Professor\*  
Ph.D., Washington University

Robert Hight, Associate Professor\*  
Ph.D., University of Missouri-Columbia

Philip B. James, Associate Professor\*  
Ph.D., University of Wisconsin

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Larry J. Lee, Assistant Professor\*, Geology  
Ph.D., Washington University

Richard D. Schwartz, Assistant Professor\*, Astronomy  
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## College of Arts and Sciences

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Studies, Professor\*  
Ph.D., American University

Werner F. Grunbaum, Professor\*  
Ph.D., University of Chicago

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Metropolitan Studies, Curator's Professor\*  
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Ph.D., London School of Economics

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Ph.D., University of California-Los Angeles

E. Terrence Jones, Graduate Coordinator, Public  
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Ruth S. Jones, Assistant Professor\*  
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Ph.D., Syracuse University

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**Psychology**

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Ph.D., University of Illinois

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Ph.D., Stanford University

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Ph.D., University of California-Berkeley

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Associate Professor\*  
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Ph.D., Northwestern University

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Ph.D., University of Colorado

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Ph.D., Tulane University

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Ph.D., Washington University

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Ph.D., University of New Mexico

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**Sociology and Anthropology**

**Sociology**

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Ph.D., Harvard University

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Ph.D., University of North Carolina

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Ph.D., University of Illinois-Chicago Circle

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Ph.D., University of California-Santa Barbara

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**Anthropology**

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School of  
Business Administration

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## School of Education

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Dorothy Doyle, Instructor  
M.A.



**Behavioral Studies**

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Athletic Director  
M.S.

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Ph.D., University of Iowa

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Ph.D., St. Louis University

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Ph.D., St. Louis University

John Wilde, Assistant Professor  
Ph.D., Southern Illinois University-Carbondale

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M.Ed.

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M.S.

## School of Education

**Childhood Education**

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Richard W. Burnett, Director, Reading Clinic,  
Professor\*  
Ed.D., Indiana University

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Professor\*  
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Wallace Z. Ramsey, Professor\*  
Ed.D., University of Missouri-Columbia

Huber M. Walsh, Professor\*  
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Robert E. Rea, Associate Professor\*  
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Ed.D., Oklahoma State University

Elizabeth P. Watson, Associate Professor\*  
Ed.D., Indiana University

Doris Brown, Assistant Professor\*  
Ph.D., St. Louis University

Lachlan Galbraith, Assistant Professor\*  
Ph.D., University of California-Berkeley

Dick D. Miller, Assistant Professor\*  
Ed.D., Utah State University

Bess Nelson, Assistant Professor\*  
Ph.D., Ohio State University

Lloyd Richardson, Assistant Professor\*  
Ph.D., George Peabody College

Thomas R. Schnell, Assistant Professor\*  
Ph.D., Southern Illinois University

Donna Jo Vandagriff, Assistant Professor\*  
Ed.D., Indiana University

Ellen R. Green, Instructor  
M.Ed.

Anne Lally, Instructor  
M.Ed.

Delores Perry, Instructor  
M.S.

Lillian Ransom, Instructor  
M.Ed.

**Graduate School Committees****Graduate Council**

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Eric Block  
Lawrence Barton  
Bryan Downes  
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Alfred Goessl  
Peter Handel  
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Frank Moss, Secretary and Vice Chairperson  
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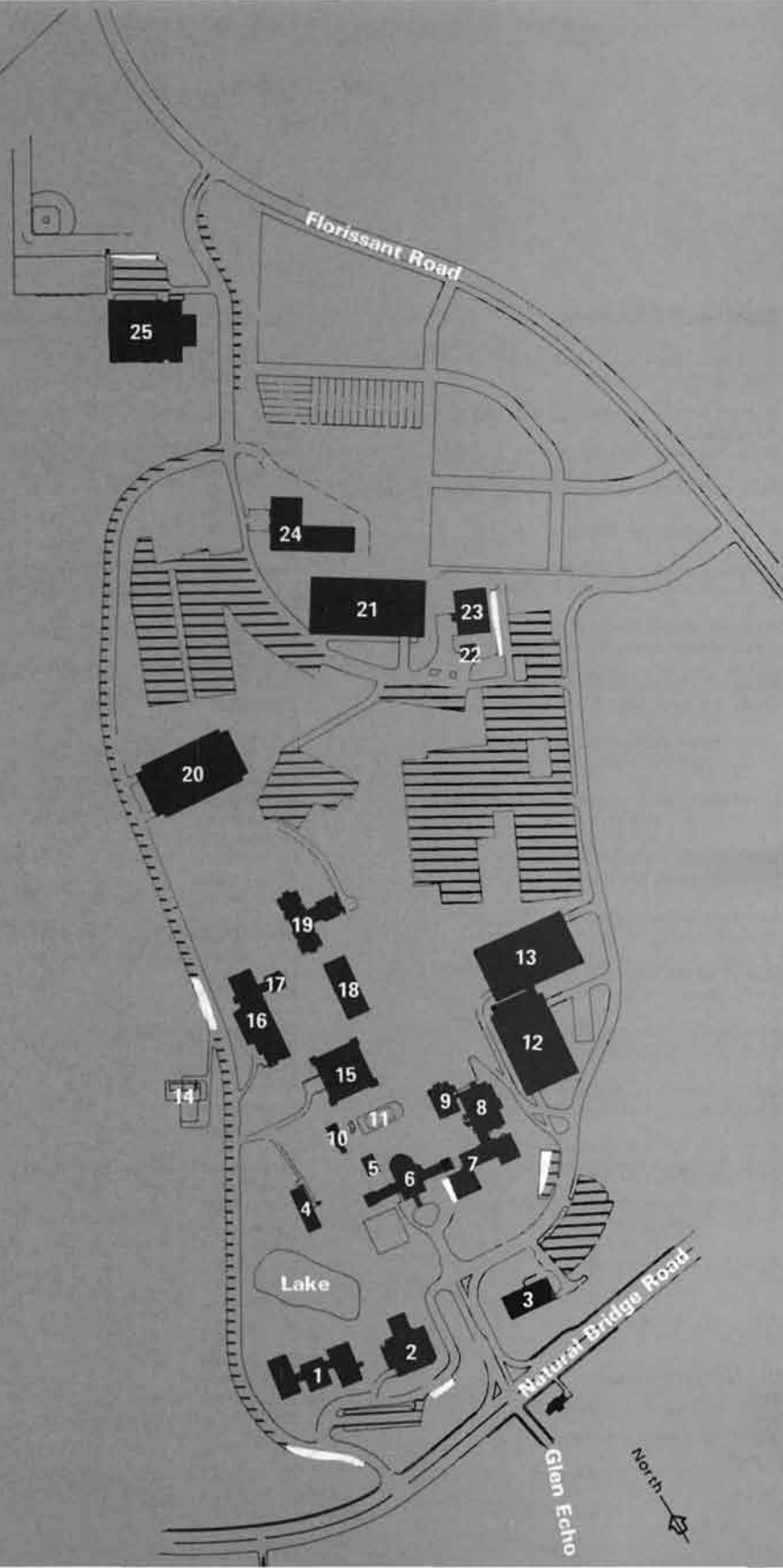
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**Regulations Committee**

Marcus Allen  
Richard Burnett  
Harold Harris  
Donald Phares  
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Grant Welland, Chairperson

Campus Map



**Key to Map**

1 Benton Hall	17 Social Sciences, Business, and Education Tower
2 Stadler Hall	18 Clark Hall
3 Administration Building (under construction)	19 Lucas Hall
4 University Center Annex	20 Parking Garage
5 Physical Plant Shop	21 Parking Garage
6 Old Administration Building	22 UMR Graduate Engineering Center
7 J.C. Penney Continuing Education Building	23 Office Building
8 University Center	24 General Services Building
9 University Center	25 Multipurpose Building
10 Campus Shop	
11 Swimming Pool	
12 Parking Garage	Permit Parking
13 Parking Garage	
14 Power Substation	
15 Thomas Jefferson Library	
16 Social Sciences, Business, and Education Building	Visitor Parking

**Calendar****1976 First Semester**

Evening College and Graduate Registration	August 17, 18, 4:30-8:30 pm
Regular Registration, Day Students	August 19, 20
New Student Orientation	August 19, 20
Classwork begins	August 30, 7:40 am
Labor Day holiday	September 6
Graduate Record Examination	October 16
Graduate Management Admissions Test	October 30
Last date for filing applications for graduate degrees	November 5
Last date for submitting doctoral dissertations	November 5
Thanksgiving Recess begins	November 24, 5:00 pm
Last date for submitting master's theses	November 26
Classwork resumes	November 29, 7:40 am
Stop Day (no classes or examinations scheduled)	December 10
Graduate Record Examination	December 11
Final examinations begin	December 13
First Semester closes	December 21, 5:00 pm
Emergency examination days (make up for snow days if necessary)	December 22, 23

**1977**

Graduate Record Examination	January 8
Mid-Year Commencement	January 9

**Second Semester**

Registration, Day Students	January 10
Evening College and Graduate Registration	January 11, 12, 4:30-8:30 pm
Classwork begins	January 17, 7:40 am

Graduate Management Admissions Test	January 29
Washington's Birthday holiday	February 21
Graduate Record Examination (aptitude test only)	February 26
Spring Recess begins	March 18, 5:00 pm
Last date for filing applications for graduate degrees	March 25
Last date for submitting doctoral dissertations	March 25
Graduate Management Admissions Test	March 26
Classwork resumes	March 28, 7:40 am
Last date for submitting master's theses	April 15
Graduate Record Examination	April 23
Classwork ends	May 2, 10:30 pm
Stop Day (no classes or examinations scheduled)	May 3
Final examinations begin	May 4
Second Semester closes	May 12, 5:00 pm
Annual Commencement	May 15
<b>Summer Session</b>	
Four Week Session I	
Registration	May 16
Classwork Begins	May 17, 7:30 am
Session closes	June 10, 5:00 pm
<b>Eight Week Session</b>	
Evening College and Graduate Registration	June 8, 9
Graduate Record Examination	June 11
Registration	June 13
Classwork begins	June 14
Last date for filing applications for graduate degrees	June 17
Last date for submitting doctoral dissertations	June 17
Independence Day holiday	July 4
Last date for submitting master's theses	July 8
Graduate Management Admissions Test	July 9
Final examinations	August 4, 5
Session closes	August 5, 5:00 pm
Summer Commencement	August 7
<b>Four Week Session II</b>	
Evening College and Graduate Registration	June 8, 9
Registration	June 13
Classwork begins	June 14, 7:30 am
Independence Day holiday	July 4
Session closes	July 8, 5:00 pm
<b>Four Week Session III</b>	
Registration	July 11
Classwork begins	July 12, 7:30 am
Session closes	August 5, 5:00 pm
Summer Commencement	August 7
<b>Other dates to note:</b>	
Yom Kippur	October 4, 1976
Martin Luther King's Birthday	January 15, 1977
Jewish Passover	April 3, 1977
Good Friday	April 8, 1977

**Academic Programs and Offices**

Administration of Justice Department  
598 Lucas, 453-5591

Academic Affairs, Vice Chancellor for,  
Administration Building, 453-5101

Administration, Philosophy, and Secondary  
Education Department  
507 SSBE Tower, 453-5944

Administrative Services, Vice Chancellor for  
Admissions and Records  
Administration Building, 453-5451

Arts and Sciences, College of  
305 Lucas, 453-5345, 5501

Behavioral Studies and Research Department  
406 SSBE Tower, 453-5791

Biology Department  
326 Stadler, 453-5811

Business Administration, School of  
487 SSBE, 453-5881

Chancellor's Office  
Administration Building, 453-5252

Chemistry Department  
438 Benton, 453-5311

Community Affairs, Vice Chancellor for  
Economics Department  
Administration Building  
907 SSBE Tower, 453-5351

Education, School of  
440 SSBE, 453-5106

Elementary Education Department  
306 SSBE Tower, 453-5782

English Department  
494 Lucas, 453-5541

Evening College  
324 Lucas, 453-5161

Continuing Education-Extension Management,  
Office of  
201 J.C. Penney Continuing Education  
Building, 453-5961

Fine Arts Department  
589 Lucas, 453-5901

Graduate School  
Administration Building, 453-5178

History Department  
484 Lucas, 453-5681

Mathematical Sciences Department  
500 Clark, 453-5741

Modern Foreign Languages and Literatures  
Department  
554 Clark, 453-5831

Philosophy Department  
599 Lucas, 453-5631

Physics Department  
517 Benton, 453-5931

Political Science Department  
807 SSBE Tower, 453-5521

Preengineering Program  
517 Benton, 453-5934

Prejournalism Program  
506 SSBE Tower, 453-5488

Prelaw Program  
807 SSBE Tower, 453-5521

Premedicine Program  
326 Stadler, 453-5811

Prepharmacy Program  
438 Benton, 453-5311

Psychology Department  
224 Stadler, 453-5391

Sociology/Anthropology Department  
707 SSBE Tower, 453-5284

Speech Communications  
590 Lucas, 453-5485

Student Teaching Office  
455 SSBE, 453-5823

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