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**UNIVERSITY
OF MISSOURI
at ST. LOUIS
BULLETIN**

ST. LOUIS, MISSOURI

GENERAL CATALOG

1967-68



**THE UNIVERSITY OF MISSOURI
AT ST. LOUIS**

**1967-68
GENERAL CATALOG
INCLUDING
DESCRIPTION OF COURSES***

Revised to March 15, 1967

*Courses offered only on the campus at St. Louis. For information concerning the University of Missouri, Columbia, the University of Missouri at Rolla, and the University of Missouri at Kansas City, write directly to the Director of Admissions at the campus concerned.

"I want to build up a people's institution, a great free university, eventually open and accessible to the poorest boy in the land, who may come and receive an education practical and suitable for any business or profession in life. I want to cheapen this whole matter of education, so that, under the broad and expansive influences of our republican institutions, and our advancing civilization, it may run free, as our great rivers, and bless the coming millions.

"Hitherto, our colleges and universities have been accessible only to the few, such are the expenses attending them. We therefore want a university with all the colleges attached, giving education of the highest order to all classes. We want ample grounds and buildings and libraries, and apparatus, and museums and endowments, and prize funds, and professors of great heads and hearts, men of faith and energy. Indeed, we want everything which will make this institution eventually equal to any on this continent. Why should we not have them? I think we can."

John B. Bowman
President
University of Kentucky
(1865)

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UNIVERSITY OF MISSOURI AT ST. LOUIS

CALENDAR 1967-1968

First Semester

1967

September 5, 6, 7—Tuesday, Wednesday, Thursday, Evening College Registration

September 8, 9, 11, 12, 14, 15—Friday, Saturday, Monday, Tuesday, Thursday,
Friday, New Student Orientation

September 13—Wednesday, Registration, Day Students

September 18—Monday, Classwork begins, 7:40 a.m.

November 22—Wednesday, Thanksgiving vacation begins, end of day

November 27—Monday, Classwork resumes, 7:40 a.m.

December 15—Friday, Christmas vacation begins, end of day

1968

January 2—Tuesday, Classwork resumes, 7:40 a.m.

January 17—Wednesday, Classwork First Semester ends, end of day

January 18—Thursday, Examinations begin

January 26—Friday, First Semester closes, end of day

Second Semester

January 29, 30, 31—Monday, Tuesday, Wednesday, Evening College Registration

February 2—Friday Registration, Day Students

February 5—Monday, Classwork begins, 7:40 a.m.

April 9—Tuesday, Easter Recess begins, end of day

April 14—Sunday, Easter

April 17—Wednesday, Classwork resumes, 7:40 a.m.

April 19—Friday, Academic Convocation

May 22—Wednesday, Classwork Second Semester ends, end of day

May 23—Thursday, Stop-Day

May 24—Friday, Examinations begin

May 30—Thursday, Memorial Day vacation

May 31—Friday, Final grades for candidates for graduation due, 12 noon

June 4—Tuesday, Second Semester closes, end of day

June 6—Thursday, Commencement

Summer Session

June 17—Monday, Registration and Orientation

June 18—Tuesday, Classwork begins, 7:40 a.m.

July 4—Thursday, Independence Day vacation

August 9—Summer Session closes, end of day

The Board of Curators

Terms Expire January 1, 1967

Orestes Mitchell, Jr. St. Louis

Terms Expire January 1, 1969

Robert Neill St. Louis

Avis Green Tucker Warrensburg

William C. Meyers, Jr. Joplin

Terms Expire January 1, 1971

William H. Billings Kennett

Doyle Patterson Kansas City

Pleasant R. Smith Mexico

Terms Expire January 1, 1973

Robert G. Brady St. Louis

Oliver B. Ferguson Fredericktown

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Oliver B. Ferguson, Vice President Fredericktown

Mary Robnett, Secretary Columbia

James P. Hickok, Treasurer St. Louis



President John C. Weaver

Administration

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Chancellor James L. Bugg, Jr.

Administration

UNIVERSITY OF MISSOURI AT ST. LOUIS

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ACADEMIC ADVISER-Maxine Stokes, B.A.
ADMINISTRATIVE ASSISTANT-Myrna Harper

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DIRECTOR-Emery C. Turner, Ph.D.
ACADEMIC ADVISER-Kay Severson, B.S.

School of Education

DEAN-Adolph Unruh, Ph.D.
DIRECTOR OF STUDENT TEACHING AND CERTIFICATION-Patrick O. Copley, Ed.D.
ACADEMIC ADVISER-Robert R. Russell, M.A.
ADMINISTRATIVE ASSISTANT-June Pettibone

Evening College

DEAN-Joy E. Whitener, Ed.D.
ASSISTANT TO THE DEAN-Donald G. Bowling, M.A.
ADMINISTRATIVE ASSISTANT-Mary Pogue

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LEONARD SCHEFFLER, B.A., Manager of Campus Bookstore
CHARLES SMITH, M.S., Athletic Director
KENNETH SMITH, B.S. in E.E., Superintendent of Physical Plant
BILLIE A. SNYDER, Administrative Assistant to the Chancellor
ROBERTE. SPITZFADEN, Supervisor of Print Shop
D. EVERETT THOMAS, M.Ed., Extension Education Coordinator
BETTY WILBANKS, Th.B., Assistant Librarian



UNIVERSITY OF MISSOURI AT ST. LOUIS

The University of Missouri, established in 1839 at Columbia, has, from its inception, taken as its major task the role of leadership in the developing system of higher education in the state. Through the years, the changing demands of this role altered the University from a small liberal arts college, emphasizing a classical curriculum, to a large university embracing fifteen schools and colleges in Columbia, and a separate School of Mines and Metallurgy in Rolla., founded in 1870.

The University Missouri at St. Louis opened in the fall of 1960 as the Normandy Residence Center of the University of Missouri. Established through the joint efforts of the University of Missouri and the Normandy (St. Louis County) School District, it began as a junior college serving 250 students its first year. An evening curriculum supervised by the Extension Division of the University provided adult education courses.

In 1963, an historic and fundamental change added the former University of Kansas City and the Normandy Residence Center in St. Louis to the University of Missouri, which now embraces four campuses: Columbia, Kansas City, Rolla, and St. Louis. The administrative leadership of the University resides in a single Board of Curators and President, and in four Chancellors who act as the administrative heads of the campuses.

A federalistic administrative policy allows each of the four campuses the maximum freedom to develop programs designed to meet the needs of each area, while providing common overall policies and objectives. Thus the University of Missouri has provided a means by which it may more readily achieve its purpose. One university of four campuses with a common policy on admission, fees, research, faculty, and quality of education seems the best method of meeting the changing demands of an omnipresent future.

Today, in its classrooms, thousands of students are educated in a catalogue of disciplines which range from accounting to zoology, while its professional schools graduate each year a constantly increasing number of engineers, physicians, veterinarians., pharmacists, lawyers, journalists, educators, business men, and other highly trained specialists. In its libraries and laboratories a constant search continues to broaden the boundaries of knowledge. On each campus an Extension Division brings the services of the University to virtually every county, city, and village in the state, as its programs to citizens in all parts of Missouri grow in size and quality.

The University of Missouri at St. Louis owes its establishment to the rapidly growing educational need of the state's largest urban area for a state university campus which would provide education of high quality at moderate cost and serve the people of the metropolitan area by supplying the assistance and leadership which the responsibilities of the state university demand.

The original student body of 250 had grown to 550 by 1963 and to 6,782 in the fall of 1966. The faculty, originally four full-time and eight part-time instructors, numbered 163 full-time and 108 part-time in the fall of 1966.

Altered from a two-year to a four-year institution in 1963, the University of Missouri at St. Louis now has a full four-year resident program in both its Day and Evening Divisions, as well as a graduate program in Education, offered in conjunction with the College of Education at the University of Missouri, Columbia. It is currently divided into a College of Arts and Sciences, and Schools of Education and Business. It will hold its first commencement in June of 1967.

The campus is located in Normandy (St. Louis County) on the site of the former Bellerive Country Club. Its 132 acres of grass, trees, and rolling land contain a recently completed three-building complex which houses classrooms; fully equipped laboratories; and faculty, departmental, and divisional offices. The second building houses the administrative offices, student cafeteria, Student Government Association, the research offices, statistics and psychology laboratories, counseling offices, and supplies the temporary quarters for the library. A library building and mathematics-modern languages classroom building are now under construction, and architects are currently drawing plans for a life-sciences building and a student union.

The objectives and purpose of this campus are outlined in the faculty bylaws reproduced on the following page. Summarized, they may be stated as the three-fold purpose of the discovery, the dissemination, and the application of knowledge. Or, stated in a different way, its purpose is that of research, teaching, and service to the people of the metropolitan area of St. Louis and to the state of Missouri. Its objective is academic excellence, and all students are required to follow a curriculum which gives them a broad training in the liberal arts and sciences, and depth in a major discipline of their choice.

This institution encourages students to qualify for advanced placement and credit, to enroll in the Honors Program if they qualify, to enroll whenever possible in seminars, in individual readings courses, and in courses which emphasize undergraduate research. Faced with the necessity of a rapid expansion which will bring more than 20,000 students to the campus by 1975, it intends to maintain its primary concern with superior teaching, informal and frequent contacts between faculty and students, creative research, and service to the metropolitan community.

The Purpose of the University of Missouri at St. Louis: A Statement from the Faculty By-Laws

- A. It shall be the policy of this University, and a principal concern of its Curriculum Committee, to insure that each student who graduates completes a program which provides a broad liberal education in the fine arts, the humanities, the social sciences, and the sciences; depth of training in a major area of study; knowledge of the heritage of the past, of the political, social, and economic responsibilities of citizens, and of cultures other than his own.
- B. Every student shall be required to enroll in at least one seminar in his major discipline during his senior year, to complete successfully an approved research project, and to pass a comprehensive examination in his major discipline.
- C. It shall be the declared policy of the faculty to:
 - 1. Accelerate by all possible means the undergraduate's entry into advanced work.
 - 2. Place principal emphasis upon the primacy of academic objectives and the maintenance of academic standards rigorous enough to insure superior preparation for graduate or professional training.
 - 3. Place emphasis in all classes on the significance of adequate communication, both written and oral. Students will be required to express themselves in clear and correct prose in their written assignments, both in and out of class.
 - 4. Emphasize and reward students for clear and precise thinking, originality, creativity, independent thought, and analytical and evaluative presentation.
 - 5. Avoid wherever possible the obsolete curriculum barriers which divide disciplines and to encourage and emphasize the interdependence and integration of all knowledge.
 - 6. Recognize and carry out the responsibility which is mandatory upon the state university to educate for responsible citizenship, to participate in community affairs, and to constantly increase the quality of service to the community.
 - 7. Recognize as a principal responsibility of the faculty the duty of working actively with students in campus concerns, of meeting with them in informal situations, of undertaking the responsibility of leading them toward the exciting challenge of intellectual discovery, and of maintaining as a basic objective the teaching function which requires sympathetic understanding of, and approaches to, students.
 - 8. To acknowledge the necessity of creativity of thought and effort in experimentation in curriculum and techniques, and to provide proper leadership in higher education in this metropolitan community and in the state.
 - 9. To acknowledge the primary role of superior teaching in this institution and to recognize the necessity for encouraging original research as an inevitable adjunct of superior teaching.

Admission

Inquiries regarding entrance should be addressed to the Director of Admissions, University of Missouri at St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 63121.

Directions to New Students

New students must submit credentials before August 1 for the fall semester, January 1 for the winter semester, and May 1 for the summer session. However, there is a possibility that all available spaces may be filled before the deadlines. Because available facilities are inadequate to provide for all qualified applicants for admission, processing periods and priorities have been established. (See Page 15.) Admission can be determined only after all credentials are on file. All new students are required to submit application forms which may be obtained from the Director of Admissions. Official transcripts should be sent directly from each institution previously attended. Out-of-state undergraduate students are required to submit a non-refundable application evaluation fee of \$10 with the application for admission. In addition, the following credentials are required.

Entering Freshmen. The entering freshman must submit a high school transcript certified by the proper official of the school in which the credits were earned and a medical history report.

Transfer Students. An undergraduate student who has attended college elsewhere must submit an official high school transcript and official college transcripts from each college attended, including statements of honorable dismissal. Reports of medical history and physical examination forms must be submitted by the applicant.

Pre-Registration Fee. All students upon notification of acceptance to the fall or winter semester will be requested to submit a non-refundable advance payment of their registration fee. This amount is credited to the student's incidental fee when he enrolls in the University.

FRESHMAN STUDENTS

Admission

High school graduates *with satisfactory records* may be admitted into regular standing in the University of Missouri at St. Louis.

Plan A: Graduates of fully accredited high schools may be admitted by certificate or transcript of record without examination. Applicants must have passed their high school courses with satisfactory marks. Admission by certificate is restricted to graduates of schools accredited by the University of Missouri, by other state universities of similar rank, by the North Central Association, or by other recognized accrediting agencies.

Plan B: A student who is not a graduate of a four-year high school and who is at least eighteen years of age may qualify for admission to the freshman class by examination. The examination will presume training and experience compensating for the lack of formal training to be had in an accredited high school. Adults, military personnel, and veterans may qualify for admission by satisfactorily passing the high school level General Educational Development tests prepared for the United States Armed Forces Institute.

Missouri Freshmen

Processing Periods and Priorities. Because available facilities are inadequate to provide for all qualified applicants for admission, top priority is given to the best qualified students or those most likely to succeed and graduate. Consequently, applications are processed according to the periods listed below. In evaluating the credentials of students below the top third ACT test scores, high school grades and college preparation, in terms of type of high school units completed, are considered in determining the admission of the applicant. Qualified applicants from the St. Louis metropolitan area are given first priority. Second priority is given to Missouri residents, and if space is available, students from out-of-state and from other countries may be admitted.

Top Third: Applicants who rank in the upper third of their high school class at the end of the sixth semester will be admitted between October 15 and January 1.

Upper Half: Applicants who rank in the upper one-half of their high school graduation class at the end of seven semesters of work may be admitted from January 1 until such time as the freshman class is filled.

Upper Two-Thirds to Upper Half: Applicants who rank between the upper two thirds and the upper one-half of their graduation class at the end of seven semesters of work will be admitted from March 1 until such time as the freshman class is filled.

Applicants who rank in the lower one-third of their graduation class cannot be accepted. The University administration suggests that students who rank in the lower one-third of their graduation class enroll in summer school. If the student earns six hours of "C," he may submit an application after the close of the summer session, and if space is available, his application will be reviewed.

Out-of-State Freshmen

Out-of-state students must rank in the upper half of their high school graduating classes in order to be eligible for admission by certificate. However, residents of the Kansas City and St. Louis metropolitan areas, or applicants approved by the Committee on Admissions, are admitted on the same basis as Missouri residents. Out-of-state applicants may be considered for admission with the completion of seven semesters of work provided that space is available.

A non-refundable transcript evaluation fee of \$10 must accompany the application for admission. Checks or money orders should be made payable to the University of Missouri. Upon notification of acceptance the applicant will be requested to submit a non-refundable advance payment of his registration. This amount will be credited to the student's incidental fee when he enrolls in the University.

Freshman Placement Tests

Freshman Placement Tests are required of all students enrolling in the University with fewer than 24 hours of college credit. The results of these tests are of benefit to both the student and his adviser in planning the student's program and in considering his educational and professional objective.

Every freshman entering for the first time must present scores from the American Colleges Test (ACT), used to measure the individual's aptitude and placement in certain required courses. For further details the student should contact his high school principal or guidance counselor. The ACT is administered at approximately thirty testing centers, four of which are in the St. Louis area. There are testing centers in other states as well.

Placement test scores are required in English, mathematics, and foreign language (French, Spanish, German, or Russian). The Foreign Language Test (FLT) will be administered on this campus.

Preparation for College

Applicants must present a minimum of 15 acceptable high school units, excluding physical education and military science. The recommended pattern is: English-4 units; mathematics-2½ units (excluding General Mathematics); foreign language-2 units in one language, classical or modern foreign language; social studies-2 units, including 1 in history; science-1 unit of laboratory science, excluding General Science. Applicants who desire to pursue a liberal arts degree should present two units in a classical or modern form of language. It is recommended that any remaining units in addition to the above schedule should be taken from such areas as art, music, economics, a second foreign language, two additional years of the same language, mathematics, science. The student should choose his remaining units in keeping with his career choice.

Advanced Standing for Freshmen

The University of Missouri at St. Louis grants advanced standing to entering freshmen who, on the basis of performance on comprehensive examinations, demonstrate proficiency in certain college-level courses such as English, mathematics, history, biology, chemistry, accounting, political science, and foreign languages.

College Entrance Examination Board Advanced Placement Examinations in the subjects listed above have been approved as a basis for advanced credit at the University. Applications to take CEEB examinations and inquiries about the ma-

cerial covered should be addressed to College Board Advanced Placement Examinations, Box 592, Princeton, New Jersey. Code Number is 6889.

Test scores should be sent to the Director of Admissions. These must be on file before the first day of classes.

TRANSFER STUDENTS

Admission

Transfer students from other colleges and universities must submit an application for admission, a high school transcript, and an official transcript from each college attended. All credentials submitted become the property of the University of Missouri at St. Louis.

Out-of-state undergraduate applicants must submit a \$10 non-refundable transcript evaluation fee with their application for admission. Transfer students are admitted according to the priority system that follows.

Students whose grade point average is 3.0 or higher will be admitted at any time (based upon the University of Missouri at St. Louis 4 point system). Students whose grade point average is 2.5 or higher will be accepted at any time during the semester prior to that for which entrance is requested. Students whose grade point average is 2.0 or higher may be accepted at any time during the last half of the semester prior to that for which entrance is requested. No student requesting transfer from another college or university whose grade point average is below 2.0 will be admitted. Application forms and credentials for the fall semester should be submitted by August 1, for the winter semester by January 1, and for the summer session by May 1. Qualified applicants from the St. Louis metropolitan area are given first priority. Second priority is given to Missouri residents, and if space is available, students from out-of-state and from other countries may be admitted.

Advanced Standing

Credit hours in the form of advanced standing may be allowed for work satisfactorily completed in another college or university of recognized standing insofar as such work satisfies the requirements of the division of the University in which the student **registers**. Courses with grades of **D** are not accepted. Advanced standing for the work of the senior year will not be granted. Claims for advanced standing, in order to receive recognition, must be made by the student within one semester after entrance.

Graduates of accredited junior colleges will be admitted without examination to junior standing in the colleges of the University, provided, upon examination of official transcripts, they have satisfied the entrance requirements and have paralleled the work of the first two years of the particular college.

Except as indicated below, no junior college student shall receive credit for more than 16 hours in one semester exclusive of the required practical work in physical education. The maximum credit the student 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 a total of 64 hours, no additional credits may be allowed for work completed in a junior **college**. Exceptions to these limitations may be permitted under the following conditions:

- a) A student with a superior scholastic record in junior college may be allowed more than 16 hours a semester if his dean has permitted excessive registration according to the following conditions: 17 hours if his "grade point average" is 2.75 or better; 18 hours if his "grade point average" is 3.0 or **better**; 19 hours if his "grade point average" is 3.5 or better. "Grade point **average**" is based upon the following grade point scale: grade A, 4 points; B, 3 points; C, 2 points; D, 1 point; F (failure), 0 points. No student will be allowed more than 19 hours for a semester's work.
- b) A student who enters junior college with advanced standing granted on the basis of examinations is not subject to the maximum of 64 hours if he has been granted such advanced standing on the basis of acceptable placement examinations. Examinations acceptable for advance placement include: (1) those administered by the University of Missouri, and (2) certain of the examinations administered by the College Entrance Examination Board and the Educational Testing Service of Princeton, New Jersey. Students who have earned any previous college credit or who have once entered upon **college** work are not eligible to take part in this program which is designed particularly for entering freshmen.
- c) A junior college student may before graduation from junior **college** complete in any approved senior college the work of one summer session without reducing the amount of credit he may be allowed from junior college.

Time Limitation on Degree Credit

No credit which has been earned more than eight years prior to the time of a student's admission to the University of Missouri at St. Louis will be acceptable for any degree unless it is validated by the major department and by the Dean of the division in which this student is seeking a degree.

No credit earned more than 10 years prior to the granting of a Bachelor's Degree may be applied toward the degree without being validated by the major department and by the Dean of the division in which the student is seeking a degree.

STUDENTS FROM OTHER COUNTRIES

Abroad. Because available facilities are inadequate to provide for all qualified applicants for admission, processing periods and priorities have been established. (See Page 15.)

Prospective students living outside the United States and its possessions are advised to write the Director of Admissions at least a year prior to the date of desired admission. Information and forms concerning admission and approximate

expenses will be sent to the students. Application papers and official records of previous school work should be furnished the Director of Admissions. Upon the approval of these papers, the student will be notified by an official letter. No prospective student should make plans to leave his country without first obtaining this permission to enter the University. All students must establish evidence of proficiency in English by a recognized examination.

In the United States. Foreign students now studying in the United States may be admitted to the University only after the completion of at least 24 semester hours of C or better quality work in the school whose letter of admission was the basis for issuance of the student's visa. To complete his credential file, he must furnish original and official transcripts from each school attended, both in this country and abroad. No student should consider himself admitted to the University until an official letter has been received stating that he is eligible for admission.

THE EVENING PROGRAM

In general, the policies governing admission of students to the Day Program are applicable to the Evening Program. Students are admitted as follows:

*Regular Student-*a student who meets the admission requirements as established by the Faculty.

*Undassified Student-*a student qualified for admission who does not desire to work toward a degree.

*Special Student-*a person over twenty-one years of age who does not qualify for admission as a regular student, but who by reason of special preparation or attainment may be judged qualified to pursue certain courses, will be admitted as a special student though not as a candidate for a degree.

Non-Degree Student-students who rank in the lowest third of their graduation class may be admitted on a probationary status provided they can, by satisfactory evidence on approved tests, demonstrate that they have the potential to complete successfully a college course. Such students may be reclassified as regular students when they have demonstrated by one year of satisfactory work in the University their ability to obtain a degree.

An applicant who desires to increase his proficiency in a certain area may be admitted to a specific course, subject to prerequisites, as a non-degree student.

An applicant who is not in good standing in the college or university he previously attended is not eligible for admission.

OTHER STUDENTS

Visiting Student Admission

Students who do not wish to earn a degree from the University of Missouri at St. Louis may be admitted by a certification as a Visiting College Student.

Admission requires certification by the student's college or university that he is

in good standing and has permission to enroll in approved course work and transfer the credit back to that institution. Visiting College Student admission is limited to the summer session and the evening program. Classroom space limitations do not permit the admission of Visiting College Students to the regular day program. Application forms for certification can be obtained from the Admissions Office.

Hearers

With the consent of the Dean and the teacher concerned, a student may be admitted to any course as a hearer. A hearer is registered and required to attend at least two-thirds of the sessions, but is not required to participate in any of the work of the course. He receives no credit toward a degree. A student enrolled as a hearer may be dropped from the course when, in the judgment of his teacher and his Dean, his attendance record in the course justifies such action.

Credit For Military Service

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

REGISTRATION

Former students (not currently enrolled) should file requests for permits to enroll with the Director of Admissions at least thirty days in advance of registration in order to receive their permits before the registration period.

A student who enters after the regular registration period may, because of closed courses, find difficulty in securing the subjects he desires; moreover, he may not be permitted to carry the full amount of work but must enroll for a proportionately reduced amount of work depending on the date of entrance. Ordinarily, no student will receive credit for work in any division of the University after the expiration of one-eighth of the scheduled time. The dates of the regular registration period are shown in the University Calendar.

Students entering the fall semester may pre-register during July and early August. Pre-registration for the winter semester and the summer session is limited to students enrolled during the preceding term.

Fees, Expenses

Ali University fees must be paid in full at the time of registration as a condition of admission to classes. Students who preregister must pay fees by the announced deadline or the advance registration will be cancelled and the student will be required to register again and pay fees during the regular registration period as indicated on the University calendar. Registration is not complete until all fees are paid.

For the purpose of all rules regarding enrollment fees, courses taken as a hearer and courses taken for reduced credit will be counted at their normal credit value in computing the amount of fees to be paid. Students enrolling in zero credit courses are required to pay fees according to the equivalent credit of the course. A student who presents a check to the University in payment of student fees, which for any reason is not honored by the bank upon which it is drawn, will be automatically suspended from the University and will be reinstated only upon payment of the amount of the check and a reinstatement fee of \$5.00.

The University reserves the right to change fees and other charges at any time without advance notice.

Following is a list of the most common fees:

Incidental Fee

All students enrolled in the University are required to pay an Incidental Fee as follows:

<i>Regular Semester</i> <i>(18 weeks)</i>	
<i>Number of Hours Credit</i>	<i>Incidental Fee</i>
10 or more	\$ 1 6 5 . 0 0
<i>Summer Semester</i> <i>(8 weeks)</i>	
5 or more	82.50

For any other sessions not specified above and for partial enrollments the Incidental Fee shall be calculated at the rate of \$20.00 per credit hour.

Non-Resident Tuition Fee

Non-Resident Tuition is free in all divisions of the University to any student who at the time of registration for a particular semester or session, is a resident of Missouri and who has been such for not less than one year immediately preceding such registration. Tuition Fee should not be confused with the Incidental Fee. All students must pay Incidental and Student Union & Activities fees regardless of whether or not they are required to pay non-resident tuition fees. It is the duty of each student to register under the proper residence and to

pay proper tuition and it is his duty to raise the question if there is a possibility that he is subject to such fees.

The Non-Resident Fee for undergraduate students who are subject to it is:

Regular Semester
(18 weeks)

<i>Number of Hours Credit</i>	<i>Non-resident Fee</i>
1 to 6	No Fee
7	\$ 75.00
8	150.00
9	200.00
10 or more	250.00

Summer Session
(8 weeks) ,

<i>Number of Hours Credit</i>	<i>Non-Resident Fee</i>
1 to 3	No Fee
4	\$ 67.50
5 or more	125.00

Student Union & Activities Fee

Each student registered in the University is required to pay a Student Union & Activities Fee as follows:

For one semester of 18 weeks (10 or more hours)	\$ 15.00
For one term of 8 weeks (5 or more hours)	7.50

For any other sessions not specified above and for partial enrollments the Student Union & Activities Fee shall be calculated at the rate of \$1.50 per credit hour or fraction thereof

Late Registration Fee

Any student registering after the close of the regular registration period shall pay a late registration fee of \$25.00.

Petition Fee

Any student dropping one or more courses, adding one or more courses, and/or adding one or more courses and dropping one or more courses at any one time, shall pay a fee of \$5.00.

Motor Vehicle Registration Fee

There will be a registration fee for each motor vehicle used by a student on the campus.

Transcript Fee

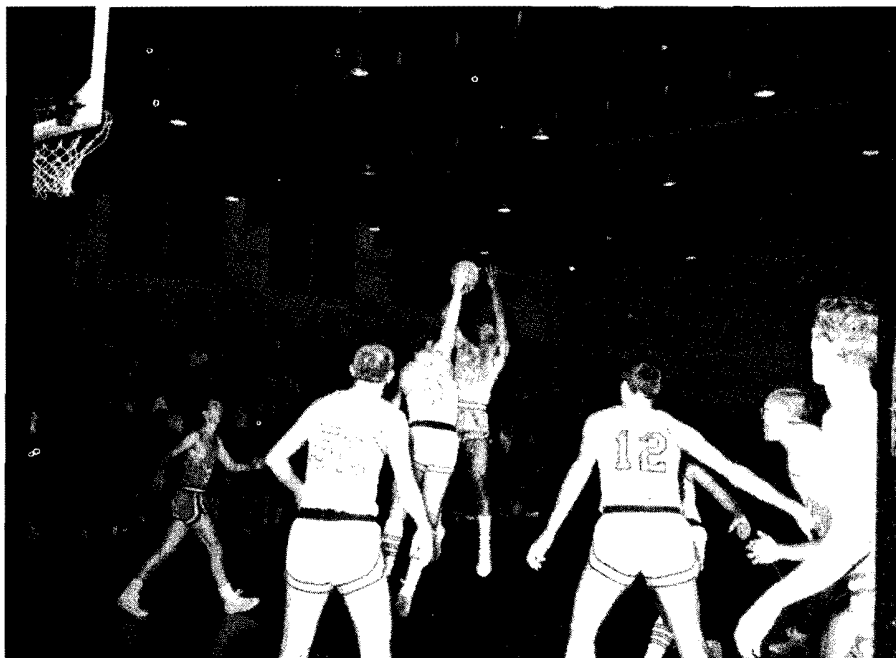
A fee of \$1.00 is charged for each official transcript of credits. A fee of 50 cents is charged for all photostatic copies of credits.

Diplomas Held for Delinquent Indebtedness

A student is required to clear ail delinquent indebtedness to the University before a diploma may be released or transcript issued.

Refond of Fees

	Regular Semester	
<i>Withdrawalr</i>		<i>Refund</i>
Before the day classwork begins		Full refund less \$10 for cost of handling registration
Within two calendar weeks from day classwork begins		70% Refund
After two calendar weeks and including six calendar weeks		50% Refund
After six calendar weeks		No Refund



Student Financial Aid

Financial aid is offered to students enrolled in the University of Missouri at St. Louis in the form of part-time employment, student loans, scholarships, waiver of fees, and grants.

Curators Freshman Scholars Program

Curators Freshman Scholars will be selected in recognition of outstanding academic achievement in high school and on potential for academic achievement in college. These Scholars will be chosen on the basis of high school rank and scores on a standardized test of academic aptitude. Students of highest academic promise in Missouri high school graduating classes will be offered the designation of Curators Freshman Scholar. For each Missouri high school graduating class the number of Curators Freshman Scholar designations offered will be at the rate of one Scholar for every one hundred students or fraction thereof.

Need is not a factor in this selection and no application is required, but the card which accompanies the certificate of recognition must be returned within thirty days of the date issued.

The full amount of the incidental fee will be waived for each Curators Freshman Scholar for his freshman year in the University and for each succeeding undergraduate year that he is designated a University Scholar.

University Scholars Program

University Scholars will be selected in recognition of outstanding academic achievement in college. University students classified as Sophomores, Juniors, or Seniors will be designated University Scholars provided they have achieved a specified high cumulative collegiate grade point average (limited to approximately the top five percent of each class). Students transferring to the University of Missouri at St. Louis from other institutions of higher education will be eligible for the designation of University Scholar provided their cumulative collegiate grade point average meets the established standards. University Scholars will be designated annually after the close of the regular academic year.

University Waiver of Fees Program

To the degree possible within budgetary limits and for the purpose of assisting deserving Missouri students to attend the University, the incidental fee will be waived in whole or in part for those undergraduate students who meet specified academic standards and who evidence financial need. The amount of the incidental fee that is waived will depend upon the degree of financial need. The financial need assessment will be made through the Financial Aids Office on this campus.

The incidental fees will be waived (in whole or in part) for:

(A) Entering freshmen with the following qualifications: (1) Missouri resident; (2) Graduation from an accredited Missouri high school; (3) Rank in the top one-fourth of high school graduation class; (4) Rank in the top one-fourth on statewide tests; (5) NEED of financial assistance. The applicant is advised to discuss the matter with his counselor. Application blanks must be completed in detail; additional information may be attached.

(B) Upperclassmen-sophomores through seniors must have achieved a specified cumulative grade point average as set by the University of Missouri at St. Louis. Students transferring from other institutions of higher education will be considered on the same basis as continuing students. Students eligibility for waiver of incidental fees will be determined annually after the close of the regular academic year.

Applications should be forwarded to: University of Missouri at St. Louis Committee on Curators Scholars, 8001 Natural Bridge Road, St. Louis, Missouri 63121.

Eve and Stuart Symington Award

This loan and scholarship fund is for Political Science majors.

Normandy **Kiwanis** Club Scholarships

The Normandy Kiwanis Club awards four scholarships annually to residents of the Normandy School District who enroll in the University of Missouri at St. Louis. One scholarship is awarded to an entering freshman, one to a sophomore, one to a junior, and one to a senior student. The scholarship is renewable at the end of each academic year. Thus, the freshman recipient could, in effect, have a four-year scholarship. The recipients are awarded three hundred and thirty dollars, one-half payable at the beginning of the fall semester and the other half at the beginning of the winter semester.

St. Louis City Panhellenic Scholarships

Two full expense scholarships are awarded to two high school senior girls who have been accepted by the University of Missouri at St. Louis.

Greater St. Louis Science Fair Scholarship

This scholarship carries a stipend equal to the incidental fees for attendance at the University of Missouri at St. Louis. It will be awarded as a four-year scholarship. The winners of prizes for exhibits in the Greater St. Louis Science Fair who are Missouri residents enrolled as students in Missouri high schools and ranking in the upper one-third of their class may be considered for this scholarship. High school students recommended for these scholarships will be selected by a Scholarship Board set up by the management of the Greater St. Louis Science Fair Organization. The Committee on Scholarships and Loans selects the

recipients of the scholarships from those persons recommended to it by the Science Fair Scholarship Board.

The John F. Kennedy Memorial Scholarship

Sponsored by the United Young Democrats of St. Louis County and available to all students, this scholarship provides two hundred dollars towards the payment of incidental fees and is awarded on the basis of scholarship and need.

Student Association Scholarships

Sponsored by the Student Association of the University of Missouri at St. Louis, scholarships carrying a stipend equal to the incidental fees are awarded on the basis of scholarship and need.

Airport Kiwanis Club Loan Fund

A loan fund established by the Airport Kiwanis Club for those students needing assistance.

The Swope Memorial Loan Fund

The Swope Memorial Fund is used primarily to enable the exceptional student to continue his studies. Only students who are graduates of St. Louis or St. Louis County public high schools are eligible to apply. Applications and further information may be obtained by contacting the Financial Aids Office, University of Missouri at St. Louis.

Student Loans

Loans are available to students under the provisions of the National Defense Education Act. Special consideration for loans will be given to superior students and NDEA funds will be allocated with first preference to those whose family income level is substantially limited. It is best if loans needed for September be requested by July 1, and loans needed for February be requested by December 1. Loans for the summer session should be requested by May 1.

Student Employment

The University employs part-time students as typists, stenographers, mimeograph operators, office, and library clerks. A number of students also are employed in various jobs in the maintenance department.

The University participates in On-Campus College Work-Study Program under the Economic Opportunity Act of 1964. A number of jobs available under this program have not been filled since eligible applicants were not available. The University can provide employment under the Work-Study Program to a student who:

- (1) is a national of the United States, or is in the United States for other

than a temporary purpose and intends to become a permanent resident thereof, or has his principal actual dwelling place, of a continuing or lasting nature as distinguished from temporary, without regard to his intent, in the trust territory of the Pacific Islands;

- (2) is from a low income family;
- (3) is in need of earnings from such employment in order to pursue a course of study at such institution;
- (4) is capable, in the opinion of the institution, of maintaining good standing in such course of study while employed by the program covered by the agreement;
- (5) has been accepted for enrollment as a full-time student at the institution or, in the case of a student already enrolled and attending the institution, is in good standing and in full-time attendance.

A student cannot be employed under the Work-Study Program for more than fifteen hours in any week in which classes in which he is enrolled are in session.

Educational Opportunity Grants

The Educational Opportunity Grant is available to a limited number of undergraduate students with exceptional financial need who require these grants to attend college. To be eligible the student must also show academic or creative promise.

Eligible students who are accepted for enrollment on a full-time basis or who are currently enrolled in good standing may receive Educational Opportunity Grants for each year of their higher education although the maximum duration of the Grant is four years.

Grants range from two to eight hundred dollars a year, and can be no more than one-half of the total assistance given the student. As an academic incentive to the students, an additional award of two hundred dollars may be given to those students who were in the upper half of their college class during the preceding academic year.

The amount of financial assistance a student may receive depends upon his need-with consideration of his financial resources, those of his parents and the cost of attending the college of his choice. To be considered for a grant it is necessary that each applicant file with the College Scholarship Service a Parents Confidential Statement. The PCS form is processed by CSS and returned to the University for consideration as to eligibility. These forms may be obtained either from your high school counselors or from the Financial Aids Office at the University.

United Student Aid Fund, Inc.

The education of young people from middle or upper income groups frequently places a financial burden on their families, particularly if there are a number of children who want to go to college. In many cases, the student cannot

qualify for student employment or a student loan. Even when commercial credit sources are available, repayment generally runs concurrently with the year as the student attends college.

To help these young people and their families, a United Student Aid Fund Program is now authorized and has been in operation since early 1966. Under this program a student may borrow as much as one thousand dollars per academic year.

A student from a family with an adjusted income of less than fifteen thousand dollars a year pays no interest while he is in an eligible college, university, or technical school. Repayment of principal and interest begins when the student has ceased his course of study. At this time the Federal Government pays approximately one-half of the interest and the student the remainder. A student from a family with an adjusted income higher than fifteen thousand dollars a year pays the entire interest on a loan, but he may borrow under the Guaranteed Loan Program at six percent simple interest. The objective of this program is to make loan insurance available to any college students who want to borrow.



PHILOSOPHY

All student activities are designed to contribute to the overall educational objectives of the University. Activities should help the student to understand both himself and the University. Put another way, activities are not to be considered as an escape from the student's academic duties; rather they should help him to understand the education he is receiving.

STUDENT GOVERNMENT

Introduction

In the spring of 1966, student government underwent a substantial revision. The revision created a student government to which specific responsibilities could be delegated. In addition, the new structure made possible the active participation of students in University government.

Legislative

The legislative branch is made up of two bodies: the Senate and the Chancellor's Advisory Council. Elections are held each spring. Each class (freshmen, sophomore, junior, senior) nominates students for Senate membership. The nominees are elected by the Council.

The Chancellor's Advisory Council is made up of the presidents of each class, the Chief Justice of the Student Court, nine students appointed by the Chancellor, and the student body president. All legislation must be concurred in by both bodies.

Executive

The president of the Senate is the student body president. All members of the executive board (president, vice-president, secretary, treasurer) are elected from within the Senate by majority vote.

Judiciary

The court is composed of five justices and a Chief Justice. The Senate nominates 12 students for court membership and six are elected by the Council. The Chief Justice is elected by the members of the court. All discipline cases involving students are heard by the Student Court.

STUDENT UNION BOARD

The Student Union Board plans all Student Association social events. The Student Union Board is composed of ten members who are elected from twenty Senate nominees. The Student Union Board plans the social events of new stu-



dent orientation, the inaugural ball, homecoming, and ail school dances. General ly the Student Union Board sets the activities calendar for the year.

OTHER ORGANIZATIONS

Many other organizations exist on campus. The University has active Chem istry, History, and English clubs. Ail campus organizations operate within the framework of student government. Any new organization which wishes to be recognized must first petition the Student Senate. An ad hoc organization may use University fadlities without being officially recognized but it must first oh tain permission from the office of the Dean of Student Affairs.

UNIVERSITY COMMITTEES

Students serve on all University Committees except tenure and research. The Chancellor appoints new committee members each year.

SPORTS

Intercollegiate

As the University expanded to become a full four-year university, the sports program was expanded to include competition with four-year colleges and uni versities. During the academic year 1966-67, UMSL played a 19-game basketball schedule. Varsity basketball games were played at the Concordia Field House in Clayton.

Intramural

The intramural program offers something for everyone. Playing fields were built during the summer of 1966. The intramural sports program includes flag football, softball, volleyball, soccer, cage ball, wrestling, and tennis.

Special Programs

HONORSPROGRAM

AU students who maintain a grade average of "B" or higher and entering freshmen who ranked in the upper fifteen per cent of their high school classes and the upper fifteen per cent on the Freshman Placement Tests are eligible to enroll in honors courses.

A high school senior may enroll in a college course for credit with the approval and recommendation of his principal. This credit may be applied as advanced standing after the student has been admitted to the University of Missouri at St. Louis.

THE EVENING PROGRAM

The Evening Program of the University of Missouri at St. Louis offers several well-defined areas of service to the students of the St. Louis Metropolitan Area:

1. A regular degree granting program consisting of the Bachelor of Arts, Bachelor of Science in Business Administration, and Bachelor of Science in Education degrees conforming to the same policies and standards as the Day Program.

Students should consult the appropriate department or the Evening Dean's Office for information concerning available majors.

2. Graduate level courses leading to a Master's Degree in Education offered in cooperation with the Graduate School of the University Missouri, Columbia.
3. Courses offered each semester which will meet teacher certification requirements within the state of Missouri. A special adviser for certification is on duty during the evening hours.
4. Pre-professional courses.
5. Courses that carry college credit which may be taken by students not working toward a degree; a service for persons wishing to maintain or improve their professional competence or broaden their educational background.
6. A counseling and advising service available without charge during the evening hours to assist students in preparing programs appropriate to their needs.

With the exception of some academic courses, evening classes are scheduled between 5:20 p.m. and 9:25 p.m. in a way to enable students to carry a full academic load.

COOPERATIVE GRADUATE PROGRAM WITH THE UNIVERSITY OF MISSOURI, COLUMBIA

Graduate work leading toward a master's degree in the field of education has been established on the campus of the University of Missouri at St. Louis in co operation with the College of Education at the University of Missouri, Columbia.

Students are admitted through the office of the Director of Admissions in Columbia. However, application for admission forms may be obtained from:

Director of Admissions
University of Missouri at St. Louis
8001 Natural Bridge Road
St. Louis, Missouri 63121

Additional information about the graduate program or courses being offered may be obtained from:

Dr. Adolph Unruh
Dean, School of Education
University of Missouri at St. Louis
8001 Natural Bridge Road
St. Louis, Missouri 63121

Dr. Bob G. Woods
Dean, College of Education
107 Hill Hall
University of Missouri
Columbia, Missouri 65201.

COMMUNITY AND METROPOLITAN STUDIES

Teaching: The Center for Community and Metropolitan Studies seeks to provide assistance in identifying the formal and informal educational needs of the metropolitan area and to assist those who teach, and evaluate both formal credit and informal noncredit educational programs.

Formal credit education is promoted by stimulating the development of urban related courses within the various departments, and experimenting with interdisciplinary courses which will provide an introduction to community and metropolitan studies for the general undergraduate student.

The Center provides research experience and opportunities for both students and faculty, and promotes cooperation and exchange of information on research and education programs in community and metropolitan problems with the other institutions of higher education.

Informal noncredit education is provided in cooperation with the Extension Division, through short courses and workshops for public officials, representatives of commerce and industry, and other interested citizens. Through publications and through cooperation with community service organizations, the Center provides information and stimulates discussion of community and metropolitan problems.

Research: The Center seeks to encourage basic and applied research in the problems of local communities and the metropolitan area.

Basic research provides new information and contributes to theory development in the various disciplines. This research is expected to result in publication

in scholarly journals and to provide assistance in developing and improving the curriculum for a degree program in community and metropolitan studies.

Applied research develops practical experience and information for use in the classroom and for assisting in the solution of immediate community and metropolitan problems. The Center cooperates with the Extension Division in providing assistance to local governments through applied research programs.

In cooperation with the Office of Research Administration the Center assists in developing proposals on research projects and educational programs for submission, through University channels, to foundations, governmental agencies, commerce, and industry for financial support.

The collection, compilation and storing of data related to social, economic, political, and other aspects of community and metropolitan problems are also functions of the Center.

Community Service: The Center, through all of the programs described above, seeks to make the research and educational facilities of the University available to civic groups, commercial and industrial enterprises, and governments to assist them in working with the problems of a metropolitan society.

PRE-LAW PROGRAM

Consultations with various law schools indicate that their primary concern is that students presenting themselves for admission have a broad educational background which emphasizes the development "of basic skills and insights through education for comprehension and expression in words, for critical understanding of the human institutions and values with which the law deals, and for creative power in thinking."

Although the general pattern is for pre-law students to major in political science, history, or business, there is no one single program of study that is required to the exclusion of all others, because law touches so many aspects of life that there is scarcely any subject which is not of some value to the law student. The basic need is for the stimulation of the student's intellectual development. This is best achieved by allowing the student to pursue those fields of knowledge in which his interests and abilities lie.

Since the University of Missouri at St. Louis requires a broad education of all of its undergraduates, many of the courses recommended for pre-law students (basic courses in mathematics, history, psychology, sociology, economics, and political science) can be taken as part of the General Education Requirements. In addition to these, however, it is strongly recommended that the pre-law student also take, either as part of his major or as electives, such courses as accounting (6 hours), corporate finance, English and American history (especially constitutional history), American political thought, public administration, logic, and at least one English composition course beyond the freshman level.

PRE-MEDICAL SCIENCES PROGRAM

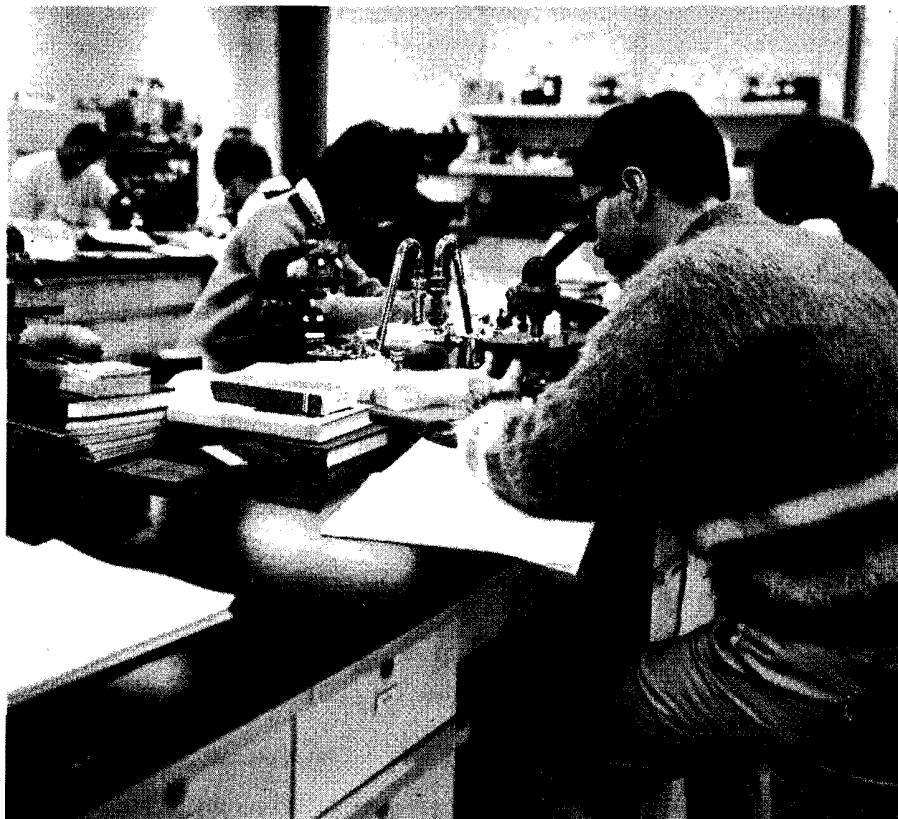
The University of Missouri at St. Louis does not award an A.B. degree with a major in pre-medical sciences. Students desiring to enter medical schools, dental

schools, or schools of veterinary medicine should pursue A.B. degrees with majors in the discipline of their choice, but they should elect to take whatever additional courses may be necessary for admission.

Admission requirements of professional schools vary, and students are cautioned to consult the catalogs of the institutions to which they intend to apply. Chemistry, biology, or psychology are recommended major disciplines for students interested in the healing arts. An A.B. degree, regardless of major, will usually meet the admission requirements of medical schools if the curriculum is chosen to include:

Chemistry 11, 12, 222, 261, 262, and 263	(Total 23 hours)
Physics 1, 2, and 3	(Total 8 hours)
Biology 11, 12, 202, and 204	(Total 15 hours)

Since students will normally apply to professional schools during their junior year, and since admission to professional schools will not be confirmed until successful completion of the science requirements for admission, students are encouraged to fulfill this requirement before the end of their junior year. In order to complete the requirements by this time, pre-medical students will normally take Chemistry 11 and 12, and Biology 11 and 12 during their freshman year.



PRE-PHARMACY PROGRAM

Admission to a school of pharmacy usually requires one or two years of college work in certain specified areas. Most colleges of pharmacy recommend the so-called 2-3 plan, which includes two years of college work followed by three years of professional courses in the college of pharmacy. Entrance requirements vary somewhat from college to college, and students taking pre-professional courses on this campus are advised to consult the catalog of the college of pharmacy to which they expect to apply.

The following is a typical two-year sequence in pre-pharmacy and meets the requirements for admission to the School of Pharmacy of the University of Missouri at Kansas City:

Freshman Year

Chemistry 11	....5	Chemistry 12	....5
Physics 1	.3	Physics 2	..3
Physics 3	..2	Mathematics 11	.....3
Mathematics 10 ..	..3	English 12	
English 10 .	.....3		14
	16		

Sophomore Year

Chemistry 261	..3	Chemistry 262	..3
Chemistry 263	..2	Chemistry 264 ..	....2
Biology 11 ...	.5	Chemistry 222	5
Economics 50 .	...3	Biology 12	....5
History 3 or Political Science 11	.3		15
	16		

RESERVE OFFICERS TRAINING PROGRAM

Students interested in a reserve officer training program may enroll with the Air Force or Army detachment on regular registration day. This program is offered on the campus of Washington University in St. Louis.

Air Force and Army officials are on the University of Missouri campus during the regular registration period to discuss the program with interested students. Enrollment is completed at that time.

A total of 12 hours of credit in advanced Air Force ROTC and Army ROTC may be counted toward a degree.

General Regulations and Requirements

Requirements in American History, Institutions and National and State Constitutions

Each student who expects to complete an undergraduate degree in the University of Missouri must present as a requirement for graduation a course or courses in this area, taken at the University of Missouri or at other colleges or universities within the state of Missouri.

The requirement can be satisfied by credit in one of the following courses: History 3, American Civilization (3); Political Science 11, Government in Modern Society (3); Political Science 170, State and Local Government (3). If a student is working for two baccalaureate degrees, this requirement will apply to the first degree only. The transfer student should inquire at the Admissions Office to determine whether he has satisfied this requirement.

Program of Studies; Credit Hours

No undergraduate student is permitted to carry in any semester courses aggregating less than 10 credit hours, exclusive of the required work in physical education which may hereafter be required, without the special permission of his dean. The normal registration is 15 credit hours. A student who has demonstrated by achieving a superior academic record an ability to carry more than 16 hours may, with the approval of his adviser and Dean, enroll for additional hours. However, in no case shall his enrollment exceed 20 hours in a regular semester or 9 hours in a summer session.

The unit of credit given in the University, the semester or credit hour, is the equivalent of a subject pursued one period per week for one semester of approximately 16 weeks. Thus a course valued at 2 credit hours will meet two periods per week for a semester; a 5-hour course will meet five periods per week for a semester. The lecture or recitation period is 50 minutes in length and the usual laboratory period an hour and 50 minutes.

Grading System

The grades used to report courses taken toward a bachelor's degree are A, B, C, D, and F. The grade A indicates superior work; the grade B, above average work; and C, average work. The grade of D indicates that the student's work is below average and the grade F that the work done is undeserving of credit.

Graduation

The last year of work must be done in residence and the student must have carried a full schedule during that time, except under unusual circumstances to be decided by the Dean.

All candidates for a baccalaureate degree must complete 120 semester hours. At least 45 of the 120 hours must be above the introductory level. Each student must maintain a minimum 2.0 overall grade point average and a minimum 2.0 grade point average in his major discipline.

The faculty may decline to recommend a student for a degree because of lack of moral qualification, even though the student has completed all the formal requirements for the degree.

Extension Course Credit

A maximum of 30 semester hours of correspondence or extension courses from an accredited institution will be accepted toward an undergraduate degree, provided the work parallels the courses offered by the University of Missouri at St. Louis and has the approval of the major department and the divisional dean.

Prerequisites

A minimum grade of C shall be required to meet the prerequisite requirement for any course except with permission of the department in which the second course is to be taught.

Scholastic Deficiencies

Those students who do not maintain satisfactory scholastic averages may be required to withdraw from the University.

Motor Vehicle Registration

All students desiring to operate a motor vehicle on the campus must register it and pay a fee at the time of registration. Failure to comply with traffic regulations may subject the student to disciplinary action, payment of an additional fee, and the denial of the privilege of operating a motor vehicle in or about the campus. Copies of the Traffic Regulations for the University of Missouri at St. Louis may be secured from the Business Office.

Attendance

Students are expected to attend classes regularly. Permission to make up class work missed as a result of absences is granted at the discretion of the individual instructor.

Petitioning to Change Classes or Withdraw from a Course

To change his original enrollment a student must secure the approval of his adviser and of the Dean. No student may enter a course after the first two weeks of the semester, or the first week of a summer session. A student may withdraw from a course with a grade of "Excused" until four weeks after the semester ~~be-~~

gins, so long as total enrollment does not fall below the 10-hour minimal requirement. Normally the Office of the Dean will not approve the withdrawal from the following:

1. Courses which should be completed in a chronological or sequential development, especially foreign languages;
2. English Composition.

After the beginning of the fifth week of a semester, or the second week of a summer session, a student may withdraw from a course with the approval of his adviser and of the Dean with a grade of "Excused," provided he is receiving a passing grade at the time of his withdrawal. Otherwise, he will receive a grade of "F."

Any student who ceases to attend classes but fails to drop officially shall receive a grade of **F**.

Academic Honesty

Academic dishonesty is considered the worst offense at the University of Missouri at St. Louis. Those guilty of a dishonesty are automatically dismissed from the University. Plagiarism is considered a dishonest act.

New Student Orientation

All new students are required to attend an orientation program scheduled annually before the opening of classes each semester.



Degrees

The University offers a Bachelor of Arts (A.B.) degree, a Bachelor of Science in Chemistry (B.S.) degree, a Bachelor of Science in Business Administration (B.S.) degree, and a Bachelor of Science in Education (B.S.) degree.

The Bachelor of Arts candidate may select a major in: Biology, Business Administration, Chemistry, Economics, English, French, German, History, Mathematics, Music History and Literature, Philosophy, Physics, Political Science, Psychology, Sociology, or Spanish.

GENERAL EDUCATIONAL REQUIREMENTS FOR THE BACHELOR OF ARTS DEGREE

A. GENERAL REQUIREMENTS

1. All candidates for a baccalaureate degree must complete 120 semester hours. At least 45 of the 120 hours must be above the introductory level. Each student must maintain a minimum 2.0 overall grade point average and a minimum 2.0 grade point average in his major discipline.
2. Each student must have been in residence for the last full year before graduation and must have carried a full schedule during that time, except under unusual circumstances to be decided by the Dean.

B. MAJOR FIELD REQUIREMENTS

1. Each student shall choose a major subject matter field.
2. Specific requirements for the major will be determined by individual departments, except that no student may count fewer than 30 or more than 45 hours in his major field toward graduation.

C. SPECIFIC REQUIREMENTS

1. *Basic English*

- a) A total of 3 hours of English Composition, with a grade of C or better. Failure to obtain a C or better will necessitate repetition of the course until at least a C grade is achieved. No student will be allowed to repeat the English Composition course more than twice after initial failure.
- b) Three hours of literary types, in which the student is to be introduced to all of the various literary types.

2. *Humanities*

A total of 9 hours, to be taken from at least two of the following areas: Art History, Literature, Music History, Philosophy. Literature is understood to include German, French, and Spanish, as well as English and American literature. When literature courses are established in classical or modern languages these shall be included.

3. *Foreign Language*

A total of 14 hours in a foreign language or its equivalent in proficiency as determined by examination. It is strongly recommended that wherever possible students shall begin a foreign language at the time of first registration.

4. *Science*

- a) A minimum of 8 hours, to consist of one lecture course in the physical sciences (3 hours), one lecture course in the life sciences (3 hours), plus one laboratory course (2 hours) in either the physical or life sciences.
- b) This requirement may be met by taking the introductory ten-hour sequence in any one laboratory science.

4. *Mathematics*

All students will be required to take a course in Mathematics.

6. *Social Sciences*

A total of 9 hours, to be taken from at least two of the following areas: Anthropology, Economics, Political Science, Psychology, Sociology.

7. *History*

A total of 6 hours.

8. *State Requirement*

A course in either American History or American Government which will satisfy the requirement of the State of Missouri.

9. *Non-Western Area*

A minimum of 3 hours of work in either Asian or African studies.

10. *Senior Year Requirements*

- a) A course in directed readings or research in the major field.
- b) A minimum of two hours of seminar in the major field in which a formal paper is required.
- c) Each student shall pass a comprehensive examination in the field of his major. The examination may be written or oral or both.



College of Arts and Sciences

The College of Arts and Sciences is the largest of the Schools and Colleges at the University of Missouri at St. Louis. The thirteen departments of the College have curricula which are designed to provide a broad exposure to the liberal arts for all students. At the same time a major in any of these departments affords a degree of specialization which is sufficient to prepare students for professional or graduate careers.

The College places heavy emphasis on independent work for students whose ability permits them to take advantage of such experience. All students must engage in a readings-seminar-research experience in the field of their major during the senior year. An interdisciplinary curriculum has been designed for students who are interested in such a course of study.

The College recognizes its unique urban location and cooperates with the teaching-research Center for Metropolitan and Community Studies to take advantage of urban opportunities. All departments orient some teaching and research toward the urban milieu of which the College is a part. In many instances students may design a major around an interdisciplinary urban curricular core.

The College offers numerous off-campus courses in the metropolitan area through the auspices of the Extension Division.

Students may pursue academic majors in the following areas: biology, chemistry, economics, English, French, German, history, mathematics, music and music history, philosophy, physics, political science, psychology, Spanish, and sociology.

DEPARTMENT OF ECONOMICS

The requirements for the A.B. degree with a major in economics are:

- A. General Education Requirements: 55 hours.
- B. General Area Requirements:
 - 1. An economics major is required to complete the following courses:
 - Business 36 Elementary Accounting I
 - Business 31 Elementary Statistics
 - 2. Mathematics 80, Analytic Geometry and Calculus 1 recommended.
 - 3. Depending on the student's interests, electives should be chosen from such related fields as business administration, history, mathematics, philosophy, political science, psychology, and sociology-anthropology. AU electives will be selected in consultation with the student's adviser.
- A. Departmental Requirements: 33 hours.
 - 1. An economics major is required to complete all of the following courses:
 - 50 Principles of Economics I
 - 51 Principles of Economics II
 - 229 Money and Banking
 - 320 Macroeconomics

- 351 Intermediate Economic Theory
 190 Readings in Economics
 191 Senior Seminar in Economics
2. An economics major must complete satisfactorily Economics 191 during his senior year. In the course of the seminar, he will prepare a senior paper which he will present to seminar students as well as in interested members of the staff. He must indicate competence both in the area of his chosen topic and in the general area of economics with in which it lies.
 3. At the end of his senior year each economics major must pass a written comprehensive examination designed to test his competence in general economic theory, policy, and institutions.

DEPARTMENT OF ENGLISH

The requirements for the A.B. degree with a major in English are:

- A. General Education Requirements 55 hours.
- B. Department of English Requirements

All requirements for the English major hereafter stated are understood to include English 10 and 12 or English 65GH.

The English Department stipulates the following course requirements for all students seeking the Bachelor of Arts degree in English:

No fewer than 36 nor more than 45 hours in English **will** be accepted toward graduation as an English major (Bachelor of Arts).

2. At least 27 hours will be taken beyond the introductory level.
3. All students majoring in English will take the following specific courses:

- a. English 135-Major British Writers 3 hours
- b. English 175-American Literature 3 hours
- c. English 220-Growth and Structure
 the English Language 3 hours

Total 9 hours

4. All students majoring in English will take at least one course in each of the following periods:

- a. Middle English Literature 3 hours
- b. Sixteenth Century English Literature
 (Shakespeare may be included in this period) . . 3 hours
- c. Seventeenth Century English Literature 3 hours
- d. Eighteenth Century English Literature 3 hours
- e. Nineteenth Century English Literature 3 hours
- f. Major American Writers or
 Modern Literature 3 hours

Total 18 hours

Specific courses will be selected with the assistance of a departmental adviser.

5. At the senior level, all students seeking the Bachelor of Arts degree in English will take the following courses:

- a. Senior Readings 3 hours
- b. Senior Seminar 3 hours

Total	6 hours
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C. Electives

1. These hours are to be chosen with the assistance of the departmental adviser.
2. Although no minors as such are required, each student must develop a supporting concentration of 12 hours *beyond the General Education Requirements* to be approved by the English Department in no more than two of the following areas: philosophy, history, art history, music history, anthropology, languages, and political science, or as approved.
3. In the case of a student preparing to teach at the elementary or secondary level, the School of Education requirements would fulfill item 2, above.

DEPARTMENT OF FINE ARTS

The Department of Fine Arts offers a major in music or music history and literature.

A major in art is not offered; however, the program includes courses in art history which are applicable to the General Education Requirements.

Music

The requirements for the A.B. degree with a major in music or music history and literature are:

- A. General Education Requirements: 55 hours. See page 39.
- B. General Area Recommendations:
 1. It is recommended that the major fulfill his language requirement in French or German, his history requirement with six hours of European Civilization, and his laboratory science requirement in the field of physics.
- C. Departmental Requirements:
 1. Every major must elect a minimum of ten additional hours in the College of Arts and Sciences, of which at least four hours shall be in the Humanities.
 2. Every major will be required to participate in an approved ensemble each semester of his course of study, to appear in performances at the discretion of the department, and to pass an examination in board proficiency during the period of undergraduate study.

3. A departmental major consists of the course requirements as listed below, but students may elect to take additional work in the major up to a maximum of 45 hours. Specific courses will be chosen in consultation with the student's adviser.

Music

Music Theory 3, 4, 111, 112 .	.. 12 hours
Music History and Literature 101, 102	.. 6 hours
Advanced Music Theory .....	.... 2 hours
Music History and Literature at the 300 level .	.. .... 3 hours
Conducting 151 .....	.... 2 hours
Major applied area and ensemble ...	..... 12 hours
Senior year requirements 192, 193 ..	<u>.. 5 hours</u>
	42 hours

Music History and Literature

Music Theory 3, 4, 111, 112, 131, 141 16 hours
Music History and Literature 101, 102 .	6 hours
Music History and Literature at the 300 level .	9 hours
Piano	8 hours
Senior year requirements 192, 193 .	..... 5 hours
	<hr/> 44 hours

4. Every major will be required to pass a comprehensive examination in the field of the major.
5. Standards of achievement in applied music, piano proficiency, and entrance requirements are on file, and the major should familiarize himself with these requirements.

DEPARTMENT OF HISTORY

The requirements for the A.B. degree with a major in history are:

- A. General Education Requirements: 55 hours. See page 39.
1. It is recommended that students fulfill their Social Science requirement by taking courses in Economics, Political Science, or Sociology.
- B. Departmental Requirements: 36 hours.
1. A major in history consists of 36 hours, but students may elect to take additional work in history up to a maximum of 45 hours.
 2. History majors may emphasize American, Asian, or European history in their major program as follows. Specific courses will be chosen in consultation with the student's adviser.

American

History 1 and 2 .....	.... 6 hours
History 3 and 4 .....	..... 6 hours
American history at the 300 level ... Other	... 12 hours
Non-American at the 300 level .	... 6 hours
History 192 and 193 .....	..... 6 hours

Asian

History 1 and 2 .	.6 hours
History 3 and 4 .	...6 hours
Asian History . . . . .	.12 hours
Other than Asian at the 300 level	....6 hours
History 192 and 193 ..	. .6 hours

European

History 1 and 2 . . . . .	... 6 hours
History 3 and 4 . . . . .	.....6 hours
European History at the 300 level ..	..12 hours
Other than European at the 300 level .	... 6 hours
History 192 and 193	... 6 hours

3. History majors must pass a comprehensive examination during their senior year.

DEPARTMENT OF MATHEMATICS

The requirements for the A.B. degree with the major in Mathematics are:

- A. General Education Requirements: All mathematics majors must take the requisite courses to fulfill the general education requirements for the desired degree. (The student's foreign language requirement shall be completed in German, French or Russian, except by prior permission of the student's adviser and department chairman.)
- B. Six 3-hour courses numbered above 201, including courses from each of the following areas, with at least two courses from some one area:
 1. Algebra-Number Theory: Mathematics 335, 340, 341
 2. Analysis: Mathematics 310, 311, 316
 3. Geometry: Mathematics 362, 366, 367
 4. Applied Mathematics- Probability-Statistics: Mathematics 320, 323
- C. The student shall complete two sequences of at least 9 hours each in departments related to mathematics, including a course beyond the introductory level in one sequence; or a single sequence of at least 18 hours in one such department. Related sequences may be chosen from Physics 11 and 12 and above; Chemistry 11 and 12 and above; Philosophy, including 200 and 360; Economics, including 365 or 366; or other areas approved by the Mathematics Department.
- D. During his senior year, the student must complete at least one semester of Mathematics 300, Special Readings, for 1-3 hours credit.
- E. During his last four semesters the student shall enroll in Mathematics 289, Mathematics Seminar. In each of the last two semesters the student must give oral presentations which may be on topics covered in his Special Readings course. The student will receive credit for Mathematics Seminar in any semester in which he presents a formal paper.

F. No grade below "C" in any mathematics course may be counted toward a major in mathematics, and the student must achieve an overall grade point average of 2.0 in all courses attempted in his major department.

Students preparing for graduate study in mathematics are strongly advised to complete Mathematics 310, 311, 340 and 341.

The following are suggested sequences of courses leading to the A.B. degree:

BACHELOR OF ARTS

Major in Mathematics (Science Emphasis)

Freshman Year

	<i>Hours</i>		<i>Hours</i>
English 10	.....3	English 12	.....3
History .	" " .3	History ..	" "3
Math 80 ...	. .5	Math 175	.....5
Chem 11 ...	..5	Chem 12 .	..5
	16		16

Sophomore Year

Mach 201 . ,	'5	Math 250 ...	' .. 3
Physics 11 .	. 5	Physics 12	.....5
French or German 1 .....	. 4	French or German 2	... " .4
Humanities		Humanities .	' ' ' ' ' ' ' ' .3
	17		15

junior Year

Math Seminar ..	,0	Math Seminar ..	' ' ' ' ' ' ' ' .0
Math 310 ....	. . 3	Math 320 or 323 .....	.....3
Math 335, 340 or 341	.3	Math 362, 366 or 367 ..	.. .3
French or German 101	' .3	French or German 102 ...	.3
Phy. or Chem. Elect..	.5	Social Science	
	14		12

Senior Year

Math Seminar .	....."	" .1	Math Seminar .	.. 1
Math 350	.. 1:3	.. 1:3	Math Elective	.. 3
Math Elective	.3	.3	Humanities ....	.....3
Social Science ..	.....3	.....3	Social Science ..	....." .3
Electives ..	.6	.6	Electives .	.....6
	14-16			16

BACHELOR OF ARTS
Major in Mathematics
(Philosophy of Mathematics Emphasis)

Freshman Year

	<i>Hours</i>		<i>Hours</i>
English 10 .	.3	English 12	....3
History . . . . .	.3	History . Math	..3
Math 80 ..	.5	175 . . . .	.. ' ' ....' .. 5
French or German 1 ..	.4	French or German 2 ..	..4
	15		15

Sophomore Year

Math 201	....5	Math 250	' ' ' ,3
Physics 11	... 5	Physics 12 ..	..5
French or German 101 ...	.. 3	French or German 102	... '3
Philosophy 5		Philosophy 250 ..	..3
	16		14

junior Year

Math Seminar ...	..0	Math Seminar .	.....0
Math 310 .	...3	Math 320 or 323	....3
Math 335, 340 or 341 ..	!_ ' ' ' ' ' ' , 3	Math 362, 366, or 367 ..	..3
Humanities ...	3	Social Science ..	...3
Phy. Elective	....,5	Electives ..	" ,6
	14		15

Senior Year

Math Seminar ...	.1	Math Seminar .	.1
Math 350 ..	.....1-3	Philosophy 360 .	3
Math 358 ..	.3	Math Elective	.3
Social &ience	3	Social &ience	3
Electives ...	.... 6	Electives .	.5
	14-16		15

**DIVISION OF MODERN FOREIGN LANGUAGES
AND LITERATURES**

The Division of Modern Foreign Languages and literatures offers work leading to the degree of Bachelor of Arts and a major in a foreign language and literature for secondary school teachers in education.

The requirements are:

1. General Education Requirements: 55 hours.
2. Departmental Requirements: 36 hours of the language and literature: 101, 102, 106, 107, 190, 191, 200, 201, 202; and three other literature courses (9 hours) on the 300 level. However, it is recommended that the major student take additional work in literature courses on the 300 level, up to a maximum of 45 hours. (Although the language major is encouraged to prepare himself as thoroughly as possible, the total of 36 hours may be reduced in proportion to the degree of his success achieved on a placement test taken upon his entrance to the University.)
3. AU language majors must pass a written and oral comprehensive exam during their senior year.
4. Students who are natives of French, German, Russian, or Spanish speaking countries, or who speak those languages fluently, should consult with the department before electing courses in these languages and literatures.
5. Students planning to do graduate work should confer with their advisers in the department about requirements in German, French, Russian, or Spanish.
6. The student seeking the B.S. degree in Education with a major in a foreign language and literature must take the course in The Curriculum and Methods of Teaching Foreign Language (264).

Recommendations

1. It is strongly recommended that a language major take a minimum of 15 credit hours of another language beyond elementary courses, 1 and 2.
2. It is also recommended that a language major take as much work as possible in the related areas of history, English literature, philosophy, art and music.
3. The language major is encouraged to investigate the various programs which will enable him to travel abroad during the summer preceding his senior year. This program must be approved by the department.

DEPARTMENT OF PHILOSOPHY

The requirements for the A.B. with a major in philosophy are:

- A. General Education Requirements: 55 hours.
- B. A minimum of 30 hours and a maximum of 45 hours in philosophy.
- C. Courses in philosophy must include:
 1. One logic course above 100
 2. At least three courses from 201-205 history of philosophy sequence
 3. Senior Readings 192
 4. Senior Seminar 193
 5. Four additional courses, at least three of which must be at the 300 level.

- D. Every major will be required to pass a comprehensive examination in the field of the major.
- E. Majors in philosophy who plan to enter graduate study in this field should confer with their departmental adviser about specific course requirements.

DEPARTMENT OF POLITICAL SCIENCE

The requirements for the A.B. degree with a major in political science are:

- A. General Education Requirements: 55 hours.
- B. General Area Requirements:
 Political science majors are required to complete a minimum of 9 hours of work in economics, psychology, sociology, or philosophy, chosen from at least two of these fields. These hours may be used to satisfy in part the General Education Requirements in the Humanities and Social Sciences. Majors are urged to elect at least one course in statistics or accounting. As early as possible a major should determine if he is interested in graduate work in political science or law, in preparing for government or foreign service, or for secondary school teaching, and should consult with his adviser about other courses recommended as electives.
- C. Departmental Requirements:
 - 1. A major in political science must complete a minimum of 36 hours in the department, but students may elect additional work to a maximum of 45 hours.
 - 2. A political science major is required to complete the following satisfactorily:—
 - Political Science 11 and 12 (Government in Modern Society)
 - Political Science 261 or 262 (History of Political Thought)
 - 3. In addition, a political science major must complete satisfactorily at least one course in five of the following seven fields. In the field of Political Philosophy and Theory this requirement is satisfied by the required course in the History of Political Thought:
 - Comparative Politics
 - International Relations
 - Political Philosophy and Theory
 - State and Local Government
 - Political Process
 - Public Administration
 - Public Law
 - 4. In his senior year, each political science major must complete a series of prescribed readings (Political Science 192), must prepare a senior thesis and defend it before the staff and senior majors (Political Science 193), and must pass a comprehensive, departmental, written examination.



Psychological statistics laboratory.

DEPARTMENT OF PSYCHOLOGY

The requirements for the A.B. degree with a major in psychology are:

A. General Education Requirements: 55 hours. See page 39.

B. General Area Requirements:

L French, German, and Russian are the only acceptable foreign languages for psychology majors. Other languages may be taken as electives if desired.

2. Psychology majors are urged to follow the Chemistry 11-12 sequence and the Biology 11-12 sequence. However, the General Education Requirements in science will be acceptable. Note: Biology 11 and 12 are prerequisites for Psychology 314.

3. The Psychology Department recommends that rather than electing an excessive number of hours in psychology, students elect courses in the following areas: anthropology, biology, chemistry, literature, mathematics, philosophy, and sociology.

C. Departmental Requirements: 32 hours.

1. A major in psychology consists of 32 hours, but additional hours may be elected to a maximum of 45 hours.

2. All psychology majors must take:

Psychology 1 and 2 (preferably in the freshman year)	.. 6 hours
Psychology 201 (preferably in the sophomore year)	... 4 hours

Psychology 319 and 320 (preferably in the junior year)	6 hours
Psychology 361 (preferably in the senior year)	3 hours
Psychology 192 (for seniors only)	3 hours
Psychology 193 (for seniors only)	3 hours
Electives in psychology	<u>7 hours</u>

32 hours

DIVISION OF SCIENCES

The Division of Sciences offers work leading to two degrees: the Bachelor of Arts and the Bachelor of Science in Chemistry. The Division also offers a two year pre-pharmacy curriculum and advises students who plan to enter medical schools, dental schools or schools of veterinary medicine.

BIOLOGY

The requirements for the A.B. degree with a major in biology are:

- A. General Education Requirements: All biology majors must take the requisite courses to fulfill the general education requirement for the A.B. degree. The departmental requirement stated in B and C below may be used to satisfy the science requirement .
- B. 33 hours of biology: Biology 11, 12, 213, 215, 224, either 235 and 237 or 255 and 257, 289 (all biology majors must enroll in Biology 289 for



- credit during both semesters of their senior year), and 8 additional elective hours in biology at the 200 level or higher.
- C. 20 hours of chemistry: Chemistry 11, 12, 222, 261., and 263.
 - D. Comprehensive Examination: **AU** biology majors must pass a comprehensive examination during their senior year.

Recommendations:

1. The admission requirements of many graduate schools, medical schools, and dental schools include 8-10 hours of physics. Biology majors contemplating graduate or professional training should therefore plan to elect either the Physics 1, 2, and 3 sequence, or preferably, the Physics 11, 12 sequence.
2. Some graduate schools require a knowledge of calculus. Consequently, it is desirable for biology majors to take the calculus sequence through Mathematics 201.
3. Additional work in chemistry, particularly Chemistry 262, 264, and 274, is strongly recommended.
4. In most graduate schools, the language requirement must be met with German or French specifically. For this and other reasons it is desirable for biology majors to fulfill the language requirement for the A.B. degree by studying one of these two languages.
5. Most medical schools recommend Comparative Anatomy for admission. Premedical students majoring in biology should therefore include Biology 202 and 204 among their biology electives.
6. Because an important area of biology consists of the study of living organisms in their natural environment, biology majors are encouraged to attend a summer session at a field biology station. This would ordinarily be done between the junior and senior years. Many biological stations offer financial support in the form of summer fellowships.

The following is a suggested sequence leading to the **A.B.** degree with a major in biology:

Freshman Year

	<i>hours</i>		<i>hours</i>
Chemistry 11.....	..5	Chemistry 12 .	.5
Biology 11 .....	...5	Biology 12 ...	.. .5
English 10 .....	.....3	English 12 ..	.. .3
History 3 or		Elective ....	.. ... 3
Political Science 11 ..	..... 3		16
	16		

Sophomore Year

Chemistry 261 ....	..3	Chemistry 222.....	..5
Chemistry 263 .....	..2	Biology 213 ...	..3
Biology 224.....	..... 3	Biology 215 .....	..2
Modern Language 1	.....4	Modern Language 2	..4
Elective .....	...3		14
	15		

junior Year

Biology 235 or 255	3	Elective in biology .	3
Biology 237 or 257 .	2	Modern Language 203	3
Modern Language 103 .	3	Electives ...	9
Electives	6		15
	14		

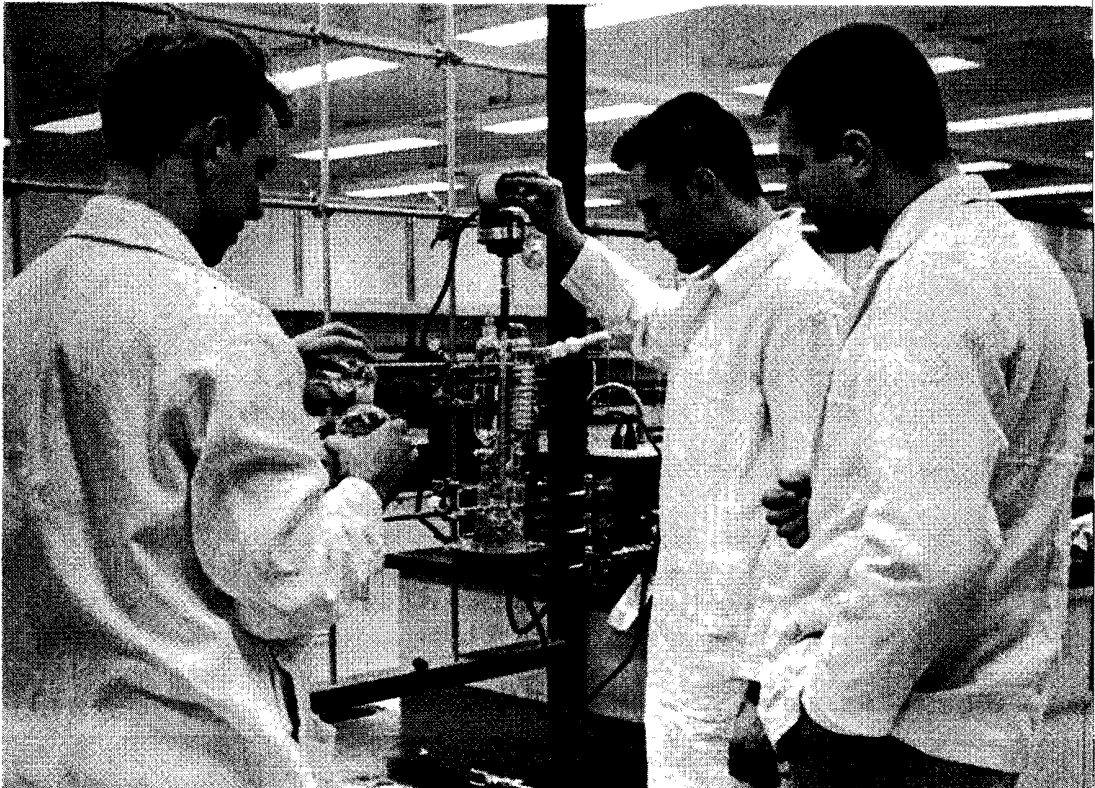
Senior Year

Biology 289	1	Biology 289	1
Elective in Biology	3	Elective in Biology .	2
Electives	12	Electives	12
	16		15

CHEMISTRY

The requirements for the **A.B.** degree with a major in chemistry are:

- A. General Education Requirements: **All** chemistry majors must complete the requisite courses to fulfill the General Education Requirements for the **A.B.** degree. The departmental requirement stated in **B**, **C**, and **D** below may be used to satisfy the science and mathematics requirements.
- B.** 33 hours of chemistry: Chemistry 11, 12, 222, 231, 232, 233, 261, 262, and 289 (all chemistry majors must enroll as hearers in Chemistry 289 during both semesters of their junior year, and all chemistry majors must take Chemistry 289 for credit during both semesters of their senior year).



- C. 15 hours of mathematics: Mathematics 80, 175 and 201.
- D. 10 hours of physics: Physics 11 and 12.
- E. Language Requirement: German must be used to fulfill the language requirement. In rare instances French or Russian may be substituted for German, but only with departmental approval. Spanish does not satisfy this requirement for chemistry majors.
- F. Comprehensive Examination: All chemistry majors must pass a comprehensive examination during their senior year.

The following is a suggested sequence leading to the A.B. degree with a major in chemistry:

Freshman Year

	<i>Hours</i>		<i>Hours</i>
Chemistry 11	5	Chemistry 12 ...	5
Mathematics 12	5	Mathematics 80	5
Elective ....	.3	History 3 or	
English 10 .	..3	Political Science 11 .	. .3
	16	English 12 .....	. 3
			16

Sophomore Year

Chemistry 261 ... .	..3	Chemistry 262	....3
Chemistry 263 .....	.2	Chemistry 222 .....	..5
Mathematics 175 ..	...5	Mathematics 201 ..	..5
German 1 ....	..4	German 2 .	' ..4
	14		17

junior Year

Chemistry 289	....H	Chemistry 289	.. H
Physics 11 ... .	... 5	Physics 12 ..	.....5
German 101 .....	.. 3	German 102	.....3
Electives ..	...." .6	Electives .	..6
	14		14

Senior Year

Chemistry 231 ...	..3	Chemistry 232	.3
Chemistry 233 ..	.3	Chemistry 289 .	... 1
Chemistry 289	..1	Electives .	.10
Electives	... ,9		14
	16		

BACHELOR OF SCIENCE IN CHEMISTRY

- A. General Education Requirements: All of the General Education Requirements for the A.B. degree must be met by candidates for the Bachelor of Science in Chemistry degree. The science and mathematics requirements are satisfied by **C**, **D**, **E**, and **F** below.

- B. Language Requirement: German is the only foreign language which may be used to satisfy the language requirement for the Bachelor of Science in Chemistry degree.
- C. 46 hours of chemistry: Chemistry 11, 12, 222, 231, 232, 233, 234, 261, 264, 262, 263, 289 (all chemistry majors must enroll as hearers in Chemistry 289 during both semesters of their junior years, and all chemistry majors must take Chemistry 289 for credit during both semesters of their senior year), 324, 341 and 3 additional elective hours in chemistry at the 200 level or higher.
- D. 15 hours of mathematics: Mathematics 80, 175, and 201.
- E. 10 hours of physics: Physics 11 and 12.
- F. Science Electives: A total of 5 additional elective hours in the departments of biology, chemistry, mathematics, or physics.
- G. All chemistry majors must pass a comprehensive examination during their senior year.

The following is a suggested sequence leading to the **B.S.** in Chemistry:

Freshman Year

	<i>Hours</i>		<i>Hours</i>
Chemistry 11	5	Chemistry 12	5
Mathematics 80 ..	5	Mathematics 175 .	5
English 10	3	English 12	3
History 3 or		Elective .	3
Political Science 11 .	3		16
	16		

Sophomore Year

Chemistry 261	3	Chemistry 262	3
Chemistry 263	2	Chemistry 264	2
Physics 11	5	Physics 12	5
Mathematics 201 ..	5	Chemistry 222 .	5
	15		15

Junior Year

Chemistry 231	3	Chemistry 232	3
Chemistry 233 .	2	Chemistry 234	2
Chemistry 289	H	Chemistry 289	H
German 1	4	German 2 .	4
Electives	6	Electives ..	6
	15		15

Senior Year

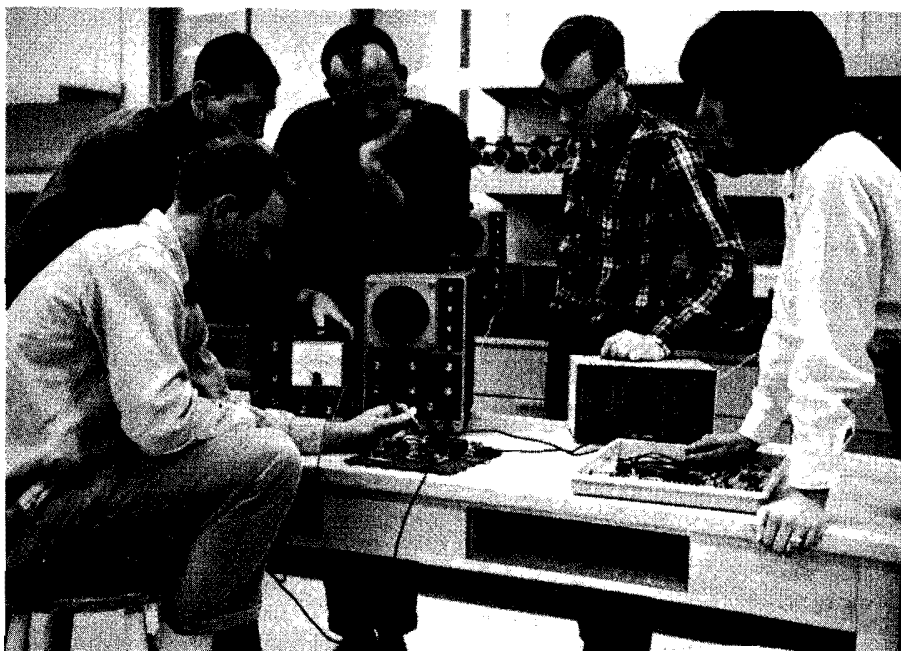
Chemistry 341	3	Chemistry 324	3
Chemistry 289 .	1	Chemistry 289	1
Elective in Chemistry ..	3	German 102 .	3
German 101	3	Electives	8
Electives	5		15
	15		

PHYSICS

The requirements for the A.B. degree with a major in Physics are:

- A. General Education Requirements: All physics majors must complete the requisite courses to fulfill the General Education Requirements for the A.B. degree. The departmental requirement stated in B, C, and D below may be used to satisfy the science and mathematics requirements.
- B. 34 hours of Physics: Physics 11, 12, 211, 212, 221, 223, 231, 241, 289 (all Physics majors must enroll as hearers in Physics 289 during both semesters of their junior year, and all physics majors must take Physics 289 for credit during both semesters of their senior year), 301, at least two hours of advanced laboratory work, and three additional elective hours in physics at the 300 level or higher.
- C. 18-21 hours of Mathematics: Mathematics 80, 175, 201, 222 and 301. Students with experience in digital computer programming may be excused from Mathematics 222.
- D. 10 hours of Chemistry: Chemistry 11 and 12.
- E. Language Requirement: German, Russian or French must be elected to satisfy the language requirement; other languages may not be applied toward the A.B. degree in Physics.
- F. Comprehensive Examination: All Physics majors must take a comprehensive examination during their senior year.

Physics majors preparing for admission to graduate study should plan on additional course work in Physics and Mathematics beyond the minimal requirements stated in B and C.



The following is a suggested sequence leading to the **A.B.** degree with a major in Physics:

Freshman Year

	<i>Hours</i>		<i>Hours</i>
Chemistry 11 .	5	Chemistry 12 ..	5
Mathematics 80 .	5	Mathematics 175 ..	5
English 10	3	English 12 ..	3
History 3 or		Elective .	3
Political Science 11	3		16
	16		

Sophomore Year

Physics 11 ..	5	Physics 12	5
Mathematics 201	5	Mathematics 301	3
Modern Language 1	4	Modern Language 2 .	4
Elective .	3	Elective	3
	17		15

Junior Year

Physics 211 .	1	Physics 212	1
Physics 221 ...	3	Physics 223 .	3
Physics 241 ...	3	Physics 231	3
Physics 289	3	Physics 289 ..	3
Modern Language 101	3	Modern Languages 102	3
Mathematics 222 ..	3	Electives ... , ,	6
Elective .	3		16
	16		

Senior Year

Physics Lab Elective .	2	Physics 300 elective ..	3
Physics 301	3	Physics 289 ...	1
Physics 289	1	Electives .	12
Electives .	9		16
	15		

DEPARTMENT OF SOCIOLOGY-ANTHROPOLOGY

The requirements for the A.B. degree with a major in sociology-anthropology are:

A. General Education Requirements: 55 hours.

B. General Area Requirements:

Sociology-anthropology majors are strongly advised to take at least 6 hours in one or more of the following areas: economics, political science, philosophy, and psychology. Economics 50 and 371 are strongly recommended for those sociology majors intending to enter social work.

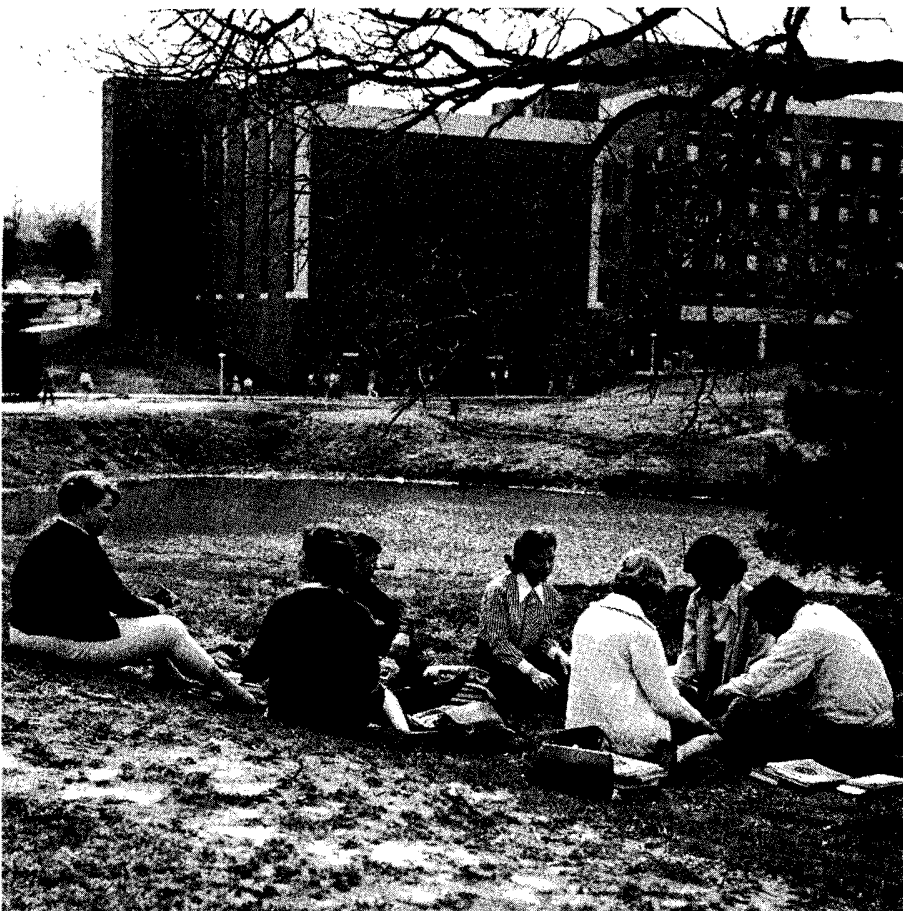
C. Departmental Requirements: 30 hours.

1. Majors may choose a program emphasizing either sociology or anthropology. Either avenue will provide a basis for graduate study in the field chosen.

2. A major consists of a minimum of 30 semester hours. It is recommended that students take additional work to a maximum of 45 hours in the Department.
3. A major in sociology-anthropology must complete satisfactorily each of the following:

Introduction to Sociology	6 hours
Physical Anthropology	3 hours
Social Theory	3 hours
Research Methods	3 hours
Junior Readings	3 hours
Senior Seminar	3 hours
Senior Thesis	3 hours
Electives in sociology or anthropology	<u>6 hours</u>
	30 hours

4. Departmental majors will be required to pass a written comprehensive examination during the second semester of their senior year. The examination will test the student's grasp of theory, methods, and contemporary research findings. As partial preparation for the examination, a basic reading list will be provided each major.



Division of Business

The Division of Business offers work leading to two degrees: the Bachelor of Arts and the Bachelor of Science in Business Administration. Both degrees represent a balanced educational program combining a liberal arts education with the important core courses of a professional education in Business Administration. There is ample opportunity within this curriculum to concentrate in one of the traditional areas of accounting, economics, finance, management, or marketing. The degree is designed to educate a graduate to render both an initial and long-range contribution to society and to develop fully his own potential in an economic environment. In addition, the curriculum in Business Administration offers an excellent foundation for work toward an L.L.B. degree or graduate work in business and economics.

The requirements for the A.B. degree with a major in Business Administration:

- A. General Education Requirements (AU Business majors must complete the requisite courses to fulfill the General Education Requirements for the **A.B.** degree.)
- B. Economics 50 and 51.
- C. The following "core" courses:
 - Accounting 36-Principles of Accounting
 - Accounting 37-Principles of Accounting
 - Statistics 31-Elementary Statistics
 - Accounting 302-Managerial Accounting
 - Management 106-Principles of Marketing
 - Management 310-Personnel Administration
 - Management 202-Industrial Management
 - Finance 204-Corporate Finance
 - Management 256-Business Law
 - Management 391-Business Policy and Administration
- D. An additional 15 hours in the Department of Business Administration specializing to the extent he desires.
- E. At least one 3 hour senior level seminar and a research paper (normally to be satisfied by Management 391).
- F. A grade of "C" or above in courses serving as prerequisites.
- G. A candidate for graduation must present a 2.0 departmental grade point average.

The General Education Requirements for the degree Bachelor of Science in Business Administration are the same as the General Education Requirements for the degree Bachelor of Arts in Business Administration with one important exception.

The student must complete a minimum of an additional 14 total hours in mathematics, science and/or other quantitative subjects beyond the 8 hour science and 3 hour mathematic provision in the General Education Requirements. This requisite effectively represents a 25 hour minimum in mathematics, science and/or

other quantitative subjects and may be substituted for the 14 hour modern foreign language portion of the General Education Requirements.

The requirements for the B.S. degree with a major in Business Administration:

- A. At least eight hours of science as prescribed in the General Education section of the Catalog.
- B. A minimum of Calculus 80 in the area of mathematics.
- C. Enough additional hours to bring the total hours to 25, from any combination of courses in the areas of mathematics, science, statistics (to include Elementary Statistics 31), computer science, or in business, economics, and other disciplines that offer courses which develop quantitative applications for decision-making. The quantitative courses in business, economics and related disciplines will be designated by the faculty and communicated in the course schedules and by student advisers.

TYPICAL CURRICULUM
Major in Business Administration

Freshman Year

	Hours		Hours
English 10 ..	..3	English 12	" 3
Economics 50	..3	Economics 51	" ... 3
Mathematics 10 ..	..3	Mathematics 11 Or	" " 3
Humanities .	..3	Modern Language 2	" (4)
History Or	..... 3	History	" 3
Modern Language 1 .		Humanities requirement Or ...	" ..3
	15 or 16	Science requirement*	
			15 or 16

Sophomore Year

Accounting 36 .	... 3	Accounting 37 .	..3
Mathematics 80 Or .	..... 5	Statistics 31	3
Modern Language 101	..(3)	Math, Science or other	
Humanities Or	"..3	quantitative course Or	..3
Laboratory Science requirement	".. 5	Modern Language 102 ...	..(3)
	16 or 14	Humanities or Science requirement* " ..3	Social
		Science requirement .	
			15

junior Year

Principles of Marketing 106 ..	..3	Corporate Finance 204 ..	.. .. 3
Industrial Management 202 ..	..3	Business Law 256 .	..3
Managerial Accounting 302 .	..3	Personnel Administration 310	..3
Arts & Science Electives .....	... 6	Arts & Science Electives .	..6
	15		15

Senior Year

Business Electives .	..9	Business Policy and Administration 391 ...	3
Arts & Science Electives .	"..6	Business Electives	..6
	15	Arts & Science Electives	6
			15

*The science requirement may be met by taking the ten-hour introductory sequence in any one laboratory science.

School of Education

Teacher education at the University of Missouri at St. Louis was organized as a Division of Education in 1964. The School of Education was established in 1966 with the specific responsibility for the preparation of teachers.

The curriculum now includes work leading toward a Bachelor of Science in Education (B.S. in Ed.) on the pre-school, elementary, and secondary levels.

The program for the education of elementary school teachers varies considerably from that of the secondary school teachers. The former includes many additional requirements and it is necessary to plan the four-year program carefully with an adviser. Failure to do so may result in inappropriate course selections, thereby requiring the student to complete more than the minimum of 120 semester hours for the degree. The program in Early Childhood Education which is now available also requires careful planning.

Course descriptions should be examined carefully for prerequisites since in many cases it will be virtually impossible to proceed to other courses without having completed them.

Students who expect to teach in high schools are required to have earned strong academic majors in their chosen subject matter areas. They should, therefore, consult with their advisers before enrolling each semester to assure themselves of appropriate selections from among the curricular offerings.

COOPERATIVE GRADUATE PROGRAM

A graduate program in education is available in cooperation with the College of Education, University of Missouri, Columbia. Graduate study toward the Masters Degree in Education may be pursued in the following areas:

Elementary Education

Secondary Education

Elementary School Administration

Secondary School Administration

Elementary Guidance and Counseling

Secondary Guidance and Counseling

Students are admitted through the Office of Admissions in Columbia. However, application for admission forms may be obtained from:

Director of Admissions

University of Missouri at St. Louis

8001 Natural Bridge Road

St. Louis, Missouri 63121

Additional information about the graduate program or courses being offered may be obtained from:

Dr. Adolph Unruh

Dean, School of Education

University of Missouri at St. Louis

8001 Natural Bridge Road

St. Louis, Missouri 63121

Dr. Bob G. Woods

Dean, College of Education

University of Missouri

Columbia, Missouri 65201

TEACHER CERTIFICATION

In cooperation with the Missouri State Department of Education, the School of Education, University of Missouri at St. Louis, is responsible for recommending students for teacher certification. All requests and inquiries regarding certification should be made to the Office of Teacher Certification.

ADMISSION

Students seeking admission to the School of Education must present better than a C average, not less than 54 hours of credit with not more than nine hours of deficiencies in the General Education Requirements for admission. Admission forms and information may be obtained from the Admissions Office, 125 Administration Building. Applicants must have official transcripts forwarded to the Director of Admissions. Former students and students currently enrolled must file a request for a permit to enroll.

Elementary School Teachers

The General Education Requirements for this degree are the same as the General Education Requirements for the Bachelor of Arts degree except that the requirement of a foreign language may be waived for students who wish to present, instead, 14 semester hours in one department above the General Education Requirements.

The professional education course requirements are listed below:

Educational Psychology
History of American Education
Techniques of Elementary School Teaching
Elementary School Organization and Administration
Child Psychology
Teaching Reading in Elementary Schools
Problems of Teaching Mathematics in Elementary Schools
Children's Literature
Student Teaching
Elementary School Music
Art Activities in Elementary Schools
Regions and Nations of the World
Elements of Health Education
Physical Education in the Elementary Schools

For more detailed information about the Elementary and Early Childhood Education program, the student is urged to consult the *School of Education Bulletin*.

Secondary School Teachers

The General Education Requirements are the same as the General Education Requirements for the Bachelor of Arts degrees, except that the requirement of a

foreign language may be waived for students who wish to present, instead, 14 additional hours in an academic area other than their major.

Students preparing to teach in the high schools may major in any one of the several disciplines offered. For example, a major may be earned in any one of the sciences (biology, chemistry, physics); in a foreign language (French, Spanish, German); in one of the social sciences (economics, political science, psychology, sociology-anthropology); or in history, mathematics, philosophy and English.

Requirements

- A. General Education Requirements 55 hours
- B. Required Courses in Professional Education:
 - Education 100 Orientation of Teaching 0
 - Education 102 Educational Psychology 3
 - Education 125 History of American Education
 - or
 - Education 126 Education and Culture 3
 - Education 163 Techniques of Secondary School Teaching 2
 - Education 170 Secondary School Administration for Teachers 2
 - Education 110 Elements of Health Education 2
 - Psychology 271 Adolescent Psychology 3
 - Education 261-9 Special Methods Course by Department 3
 - Education 271 Secondary School Student Teaching 6
- C. The academic major will be defined cooperatively by the major department and the School of Education Faculty. At least 30 hours are required for a major. Additional requirements are:

Student Teaching (6 credit hours) is the equivalent of the course in directed readings or research in the major.

The Special Methods course, which includes such work as special readings, papers, and seminars, (3 credit hours) is the equivalent of the three-hour seminar in the major field.

Typical Program for Teachers of Business Education

The requirements for a major in Business Education include work in secretarial training and business administration. The courses needed for a degree and certification are listed below:

	<i>Hours</i>
Education 231 Advanced Typewriting	5 *
Education 235 Advanced Stenography and Secretarial Practice	6 *
Education 233 Filing Systems and Records Management	2
Economics 50 Principles of Economics I	3
Economics 51 Principles of Economics II	3
Business 36 Elementary Accounting I	

*The number of required hours in typewriting and stenography may be reduced by previous training, or waived on the basis of performance on proficiency examinations.

Business 37 Elementary Accounting II	3
Business 31 Elementary Statistics	3
Business 302 Managerial Accounting	3
Business 106 Principles of Marketing	3
Business 204 Corporate Finance	3
Business 256 Business Law	3

Typical Program for Teachers of English

The major in English includes the following requirements:

1. All requirements for the English major hereafter stated are understood to include English 10 and 12 or English 65GH.
2. No fewer than 30 nor more than 45 hours in English will be accepted toward graduation as an English major (Bachelor of Science in Education).
3. At least 24 hours will be taken beyond the introductory level, six hours of which must be in American literature.
4. All students majoring in English will take the following specific courses:

a. English 135-Major British Writers	3 hours
b. English 220-Growth and Structure of the English Language ..	<u>3 hours</u>
Total	6 hours
5. At least one course must be completed in each of the following periods:

a. Middle English Literature	3 hours
b. Sixteenth Century English Literature	3
hours (Shakespeare may be included in this period)	
c. Seventeenth or Eighteenth Century English Literature	3 hours
d. Nineteenth Century English Literature	<u>3 hours</u>
Total	12 hours
6. All students majoring in English will take at least six hours in American Literature (see No. 3 above).

Total	6 hours
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Specific courses are to be selected with the assistance of a departmental adviser.

Beyond the requirements listed above, the student is also urged to go beyond the minimum hours indicated. It should be further noted that that student must take a course in the methods of teaching English.

Program for Teachers of Mathematics

The requirements for a major in Mathematics are:

- A. Six 3-hour courses numbered above 201, including courses from each of the following areas, with at least two courses from some one area:
 1. Algebra-Number Theory: Mathematics 335, 340, 341
 2. Analysis: Mathematics 310, 311, 316
 3. Geometry: Mathematics 362, 366, 367
 4. Applied Mathematics-Probability-Statistics: Mathematics 320, 323

- B. The student shall complete two sequences of at least 9 hours each in departments related to mathematics, including a course beyond the introductory level in one sequence; or a single sequence of at least 18 hours in one such department. Related sequences may be chosen from Physics 11 and 12 and above; Chemistry 11 and 12 and above; Philosophy, including 250 and 360; Economics, including 365 or 366; or other areas approved by the Mathematics Department.
- C. No grade below "C" in any mathematics course may be counted toward a major in mathematics, and the student must achieve an overall grade point average of 2.0 in all courses attempted in his major department.
- D. The suggested course sequence for a major in Mathematics is:

Freshman Year

	<i>Hours</i>		<i>Hours</i>
10	... 3	English 12	3
3	.3	History 4	. 3
Math 80 ..	.....5	Math 175	..5
Chem 11	.....5	Chem 12	.....5
	16		16

Sophomore Year

Math 201	... 5	Math 250 .	.3
Physics 11	....5	Physics 12 .	.5
Education 125	.....3	Education 110	.. 2
Psychology 1 ..		Psychology 2	..3
	16	Humanities ..	.. 3
			16

junior Year

Math 310 ..	..3	Math 362, 366 or 367 .	... '3
Math 335, 340 or 341	3	Physics or Chemistry	....5
Education 102	3	(Elective)	
Psychology 270 .	... .3	Education 163	... 2
Humanities .	.....3	Education 170	... 2
Education 100 ...	... '.....0	Humanities (Non Western)	3
	1 5		15

Senior Year

Math 320 or 323	.3	Math Elective .	.. .3
Education 266 ..	.3	Minor Elective	3
Education 271	.6	Electives ..	.9
Social Science .	.....3		15
	15		

For detailed information about other academic majors the student is urged to consult the Assistant Dean of the School of Education to select an adviser in his academic area.

Description of Courses

All courses offered at the University of Missouri are listed by departments or fields of learning in alphabetical order. Approximately four weeks prior to the opening of each semester a "Schedule of Courses" is published which lists the specific courses to be offered for that semester with the time of meeting, the building, and room number of each course.

This "General Catalog Including Description of Courses" includes only those courses given on the campus, University of Missouri at St. Louis. Separate catalogs are issued by the University of Missouri, Columbia, University of Missouri at Rolla, and the University of Missouri at Kansas City.

The University reserves the right to cancel without notice any course listed in the "General Catalog Including Description of Courses" or in the "Schedule of Courses" for any semester or to withdraw any course which does not have an adequate enrollment at the close of the registration period.

Course Number

Each course bears a distinguishing number which identifies it within the department and indicates, broadly, its rank. The numbering system is as follows.

1 to 99, courses primarily for freshmen and sophomores;

100 to 199, courses primarily for upperclassmen, no graduate credit;

200 to 299, courses for undergraduates, appropriate professional students, and graduate students, except those whose graduate major is in the department in which the course is given;

300 to 399, courses for undergraduates, appropriate professional students, and for graduate students without restriction as to the student's graduate major;

400 to 499, primarily for graduate students and appropriate professional students in special programs. Upperclass students are admitted to courses in this series only with the approval of the Dean of the division in which the course is offered.

Individual restrictions of certain courses are listed under prerequisites. Thus "consent of department" or "consent of instructor" means that departmental consent (approval or permission) or consent of the instructor is required for that course.

Credit

The unit of credit at the University is the semester hour, which represents a subject pursued one period weekly for one semester of approximately 16 weeks or for a total of approximately 16 periods for one term. In general, a course valued at three semester hours meets for three periods weekly for one semester.

Following the title of the course, the number of hours of credit is given in parentheses; thus Business Law (3). If the credit is variable, to be fixed in consultation with the teacher, that fact is shown by (credit arranged) or by the minimum and maximum credit, as Research (2-8).

Prerequisites

A minimum grade of C shall be required to meet the prerequisite requirement for any course except with permission of the department in which the second course is to be taught. An academic standing prerequisite is stated by class, as senior standing (senior class standing). Requirements for class standing are variable; a student should ascertain the requirements for his particular division. The minimum grade requirement in a preceding required course is specified by a capital letter and the course designation, as C in Chemistry 1 (a grade of C or better in Chemistry course 1). GPA refers to grade point average.

ART HISTORY (See FINE ARTS)

ASTRONOMY (See SCIENCES)

BIOLOGY (See SCIENCES)

BUSINESS ADMINISTRATION

EMERY C. TURNER, Ph.D., *Chairman*, Associate Professor

EDWIN J. GROSS, Ph.D., Associate Professor

WILLIAM SAIGH, Ph.D., Associate Professor

GEORGE WITTERIED, J.O., Associate Professor

JACK BARNHILL, M.B.A., Assistant Professor

VINCENT D'ALTONI, Ph.D., Assistant Professor

DONALD DRIEMEIER, M.B.A., Assistant Professor

EDWARD HOPPER, M.B.A., Assistant Professor

ROBERT SCHUCHARDT, M.B.A., Assistant Professor

DAVID GANZ, M.B.A., Instructor

BARRY LEVINE, L.L.D., Instructor

Prerequisites may be waived by consent of the department.

31 Elementary Statistics (3)

Prerequisites: Sophomore standing and Mathematics 10. Introduction to descriptive statistics, including collection, organization, and presentation of data; averages; dispersion. Introduction to statistical inference, probability, index numbers, time series, correlation.

36 Elementary Accounting I (3)

Prerequisite: Sophomore standing. Includes rules of bookkeeping, the accounting cycle, generally accepted accounting principles, financial statement preparation and analysis, and problems of income computation and asset valuation.

37 Elementary Accounting II (3)

Prerequisite: Accounting 36 or equivalent. Continuation of study of generally accepted accounting principles. Accounting problems and techniques for partnerships, corporations, and manufacturing endeavors are emphasized.

106 Principles of Marketing (3)

Prerequisites: Accounting 37 and Economics 51. Study of marketing institutions and marketing functions. A development of the implications and interrelationship of product policy, pricing, distribution channels, demand analysis and selling strategy.

202 Industrial Management (3)

Prerequisites: Accounting 37 and Economics 51. Principles of industrial organization and management; their application to production, personnel and materials.

204 Corporate Finance (3)

Prerequisites: Economics 51 and Accounting 37. 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.

217 Intermediate Accounting (3)

Prerequisite: Accounting 37. Study of accounting theory in depth with emphasis on financial accounting.

256 Business Law (3)

Prerequisites: Accounting 37 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 Advertising (3)

Prerequisite: Principles of Marketing 106. Topics included are the advertising agency and media, use and expedience analysis, consumer motivation and appeal evaluation, measuring advertising effectiveness, and the social and legal aspects of advertising.

275 Marketing Research (3)

Prerequisite: Principles of Marketing 106. Techniques of gathering and analyzing data for marketing decisions. Identification of fundamental problems including geographic, demographic, and psychographic market segmentation. Methods of sampling, quantification and statistical analysis are developed as a means of contributing to decisions in pricing, advertising, packaging, product development, consumer motivation and other complex marketing problems.

302 Managerial Accounting (3)

Prerequisites: Accounting 37 and Economics 51. Development and interpretation of accounting data for administrative economic decisions. Accounting techniques to control costs, protect assets and analyze revenues and profits are among the topics included.

308 Production Management (3)

Prerequisite: Industrial Management 202. Integration of principles of management and economics to develop analytical approaches to production management. Role of production management philosophy explored.

310 Personnel Management (3)

Prerequisite: Economics 51. Consideration of problems in staffing, developing, and motivating personnel in a work setting. Topics include organization for personnel management, group behavior, individual differences, resistance to change and other problems encountered in developing and maintaining an effective work force.

312 Industrial and Labor Relations (3)

Prerequisite: Personnel Management 310. Emphasis on labor unions and their relationship with management. Labor laws, trade union structure and government, collective bargaining, arbitration and grievance procedures are studied.

315 Marketing Management (3)

Prerequisite: Marketing Principles 106. An extension in depth of the investigation of marketing solutions to complex problems of merchandising, channel selection, brand policy, price policy, sales promotion, advertising and personal selling.

321 Cost Accounting (3)

Prerequisite: Managerial Accounting 302 or Intermediate Accounting 217 or consent of department. Emphasizes use of accounting techniques to promote efficiency by tracing costs to personnel, processes, and products. Different systems analyzed to understand their strength, weaknesses, and applications.

322 Advanced Accounting (3)

Prerequisite: Intermediate Accounting 217. Study of consolidated statements, governmental accounts, accounting for foreign exchange, and other special topics.

323 Accounting: Income Taxes (3)

Prerequisite: Accounting 217 or Accounting 302. Problems in computing taxable income under existing federal and state laws for individuals, proprietors, partners, and corporations. Includes the preparation of returns and important topics in income exclusions, exemptions, personal and business deductions, tax credits and other subjects.

331 Auditing (3)

Prerequisite: Intermediate Accounting 217. Fundamental audit techniques for verification, analysis and interpretation of accounting records and financial statements. Includes developing audit evidence, working papers and audit reports. Standards of professional competence, ethics and independence are examined.

334 Investments (3)

Prerequisite: Corporate Finance 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.

350 Financial Policies (3)

Prerequisite: Corporate Finance 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.

360 Managerial Economics (3) (Same as Economics 360.)

Prerequisite: Economics 51. Application of economic theory to decision-making in the business firm. Discussion of price and output determination under various business conditions, as well as factors affecting wage, interest and profit.

368 Business Fluctuations and Forecasting (3) (Same as Economics 368.)

Prerequisite: Economics 299. 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.

370 Organization Theory and Structure (3)

Prerequisite: Personnel Management 100. Organizational structure, executive behavior and their inter-relationships are examined. Focus is on the emerging research relevant to the behavior of people in organization structures and the role of administrators in recognizing, modifying, and interacting within such structures.

375 Operations Research (3)

Prerequisites: Statistics 31, Calculus 80, and junior standing. Development of optimum methods and models for management control and decision-making. Based on newer methods of quantitative and statistical analysis and mathematical programming.

391 Business Policy and Administration (3)

Prerequisite: Senior standing, Marketing 106, Finance 204, and Management 310. 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 operational system. Particular attention is given the formulation of a policy framework, planning and implementing executive action. Both team and individual analyses and reports are utilized with class evaluation and recommendations.

CHEMISTRY (See SCIENCES)

ECONOMICS

INGO WALTER, Ph.D., *Chairman*, Assistant Professor

JOSEPH P. McKENNA, Ph.D., Professor

DAVID B. EMBRY, M.A., Assistant Professor

JOHN HAND, B.A., Assistant Professor

KERNO. KYMN, Ph.D., Assistant Professor

WILLIAM E. MITCHELL, Ph.D., Assistant Professor

DONALD A. MURRY, Ph.D., Assistant Professor

HERBERT D. WERNER, Ph.D., Assistant Professor

FREDRIC M. ACKER, Teaching Assistant

RICHARD V. COWLES, Teaching Assistant

WARREN E. FARB, Teaching Assistant

Prerequisites may be waived by consent of instructor.

50 Principles of Economics I (3-4)*

Prerequisite: Mathematics 10 or Mathematics 15 or 1 ½ high school units in algebra. Introduction to the subject of economics, with emphasis on the operation of the national economy, money and banking, and international economic relations. STAFF.

51 Principles of Economics II (3-4)*

Prerequisite: Economics 50. Continuation of Economics 50, with emphasis on the theory of the firm, price determination and resource allocation. STAFF.

190 Readings in Economics (3)

Prerequisite: Economics 51. Readings on topics mutually acceptable to the students and the instructor. STAFF.

191 Senior Seminar in Economics (3)

Prerequisite: Economics 51, 190 and senior standing. Seminar for economics majors in which the senior paper will be written. Directed research, writing, and presentation of findings. STAFF.

229 Money and Banking (3)

Prerequisite: Economics 50. 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. HAND, McKENNA.

270 Urban and Regional Economics (3)

Prerequisite: Economics 51. The economics of location, population growth and transportation systems, with special emphasis on the urban region. WERNER.

280 History of Economic Thought (3)

Prerequisite: Economics 51. The evolution of economic thought from the Ancients through post-Keynesian theory.

316 Public Finance: Federal (3)

Prerequisite: Economics 51. The nature and scope of public finance. Analysis of expenditure, revenue, and financial administration of the federal government, with emphasis on current problems. MITCHELL.

317 Public Finance: State and Local (3)

Prerequisite: Economics 50. A study of expenditures, 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. MITCHELL.

320 Macroeconomics (3)

Prerequisite: Economics 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. McKENNA.

321 Monetary Theory (3)

Prerequisite: Consent of instructor. Demand for money; determination of interest rates, prices, and income; decision-making under conditions of uncertainty; term structure of interest rates. Other topics of mutual interest. HAND.

328 Financial Markets Analysis (3)

Prerequisite: Economics 229. Flow of funds in the U. S. economy. Analysis of sources and uses of funds in various sectors. Introduction to the theory of portfolio choice. HAND.

330 International Economic Analysis I (3)

Prerequisite: Economics 51. The theory of international trade, the theory of commercial policy, economic integration, and economic development. Emphasis is on the theoretical framework of analysis. WALTER.

331 International Economic Analysis II (3)

Prerequisite: Economics 50. The balance of payments, the theory of foreign exchange, monetary standards, and international liquidity. Emphasis is on the payments adjustment mechanism, international monetary institutions, and alternative monetary systems. WALTER.

*A student may register for a fourth hour of readings with the consent of the department.

338 Comparative Economic Systems (3)

Prerequisite: Economics 51. A study of alternative forms of economic organization. Analysis of Capitalism, Socialism, and Fascism both in theory and in their implementation in selected countries.

340 Theory of Economic Growth (3)

Prerequisite: Economics 51. Analysis of factors affecting the economic growth of a nation: labor, capital, and technology. Discussion of formal growth models as well as policy implications. Focus on the advanced nations of the world. WALTER.

341 Economic Development: Problems and Policies (3)

Prerequisite: Economics 340 or Economics 51 and consent of the instructor. Application of the theory of economic growth to developing countries. Emphasis on problems of capital formation, education, and economic relations with other countries.

350 Special Readings (credit arranged)

Prerequisite: Consent of instructor. Unscheduled, independent directed readings on topics mutually acceptable to student and instructor. STAFF.

351 Intermediate Economic Theory (3)

Prerequisite: Economics 51. Analysis of prices in terms of equilibrium of the business firm and consumer demand in markets of varying degrees of competition. Determination of wages, rents, interest, and profit. MURRY.

355 Business and Government (3)

Prerequisite: Economics 51. Relations between business firms and government at all levels. Questions of regulation, public ownership, guidelines, and competition considered. EMERY.

360 Managerial Economics (3) (Same as Business Administration 360.)

Prerequisite: Economics 51. Application of economic theory to decision-making in the business firm. Discussion of cost and output determination under various business conditions, as well as factors affecting wage, interest, and profit. EMERY.

363 Labor Economics (3)

Prerequisite: Economics 51. Forms of labor organization, state and federal labor legislation, and policies and practices of labor unions. Emphasis on an application of economic theory to the relations of labor business. WERNER.

365 Economic Statistics and Econometrics (3)

Prerequisites: Economics 51 and Statistics 31. Application of statistical techniques to economic research problems. KYMN.

366 Econometrics (3)

Prerequisite: Economics 365. Continuation of Economics 365. KYMN.

368 Business Cycles and Forecasting (3) (Same as Business Administration 368.)

Prerequisite: Economics 229. 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.

369 The Marxist Heritage (3) (Same as Political Science 369 and Philosophy 369.)

An interdisciplinary study of Marx and leading Marxists, designed to evaluate their influence on recent political, economic, and social thought and institutions.

389 Theory of Imperfect Competition (3)

Prerequisite: Consent of the instructor. Theoretical analysis of the influence of market structure on competition. MURRY.

EDUCATION

ADOLPH UNRUH, Ph.D., *Dean*, Professor

GEORGE MOWRER, Ed.D., Professor

H. E. MUELLER, Ed.D., Professor

J. PASCHAL TWYMAN, Ph.D., Professor

KING M. WEINTGE, Ph.D., Professor

JOY E. WHITENER, Ed.D., Professor

CHARLESE. GARNER, Ed.D., Visiting Professor

ROBERT D. ELSEA, Ed.D., Associate Professor

MARGARET FAGIN, Ed.D., Associate Professor

ARTHUR H. HAFNER, Ed.D., Associate Professor

ROBERT V. ÜSMON, Ed.D., Associate Professor
 JOHN L. SCHULTZ, Ph.D., Associate Professor
 HAROLD TURNER, Ed.D., Associate Professor
 PATRICK O. COPLEY, Ed.D., Assistant Professor
 JON C. MARSHALL, Ed.D., Assistant Professor
 JANE MILLER, Ph.D., Assistant Professor ROBERT
 REA, Ph.D., Assistant Professor DEON O.
 STEVENS, Ed.D., Assistant Professor
 BLANCHE M. TOUHILL, Ph.D., Assistant Professor
 SAMUEL M. VINOCUR, M.A., Assistant Professor
 ROBERT ROSE, M.A., Instructor
 ELIZABETH WATSON, M.S., Instructor
 EDITH YOUNG, M.E., Instructor

Prerequisites may be waived by consent of the department.

- 57 Geography-Regions and Nations of the World (3)
 Introductory survey of world geography designed for general education. Presents essential characteristics and major problems of Europe, Soviet Union, Orient, Pacific World, Middle East, Africa, Latin America, Anglo-America.
- 100 Orientation (0)
 Lectures and visits to schools. Required for preparing to teach. This should be taken in the first semester of the junior year.
- 102 **Educational Psychology** (3)
 Prerequisites: General Psychology 1 and 2. Transfer students who have taken a comprehensive three-hour General Psychology class at another institution, upon recommendation of the instructor, may be admitted to the class. Any student who has junior standing or above may, with the consent of the instructor, enroll concurrently in Psychology 2 and Educational Psychology.
- 110 Elements of Health Education (2)
 Basic school health for all teachers. Considers health as it relates to the school and the child, and its interrelationship between the two.
- 125 History of American Education (2)
 Prerequisite: At least one course in American History. A student deficient in this area who has an excellent background in related disciplines, may, with the permission of the instructor, enroll in this course. A comprehensive study of development of American Education. Stresses American and other educational ideas, educational theory, American school system, and social and intellectual forces affecting American education.
- 126 **Education and Culture** (3)
 Prerequisites: Six hours in Social Sciences. A study of American education and its relation to American culture, with particular emphasis on American values, institutions, and subcultures. Recommended for all beginning education students.
- 131 Techniques of Elementary School Teaching (2)
 Prerequisites: 102 and 125. Social, psychological principles and current educational practices relating to the organization of teaching materials, teacher-pupil interaction, and the instructional activities of elementary classroom teachers.
- 137 **Elementary School Music** (2)
 Prerequisite: Sophomore standing. Basic musical preparation for all education majors. Development of the elementary school music program with emphasis on selection of music and methods of teaching music to children.
- 139 **Art Activities for Elementary School** (3)
 A study of art principles; provides laboratory experiences 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)
 Prerequisites: Education 102, and 125 or 126. 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 teaching-learning environment and general techniques of teaching.

150 Children's Literature and Language Arts (3)

A course designed to provide a knowledge of the various types of children's literature; criteria for selecting and evaluating reading material. An introduction into the problems of teaching the language arts in the elementary schools.

151 Teaching of Science in the Elementary School (3)

Prerequisites: Completion of science requirements in General Education. A study of elementary school science emphasizing the current science curricular content, methods of teaching, and instructional materials. Analysis of modern national movements affecting objectives, materials, and teaching techniques.

152 Teaching of Social Studies in the Elementary School (3)

Prerequisites: Completion of Social Science requirements in General Education. A study of elementary school social studies emphasizing the current social studies curricular content, method; of teaching, and instructional materials. Analysis of modern national movements affecting objectives, materials, and techniques.

153 Teaching Mathematics in Elementary School (3)

Prerequisite: Completion of mathematics requirements in General Education. Organization and implementation of a modern elementary school mathematics program.

155 Physical Education Activities in the Elementary School (2)

Objectives of physical education for the elementary school child with applications of choice of activities, organization of program, theory, practices.

163 Techniques of Secondary School Teaching (2)

Prerequisites: Education 102 and junior standing. Activities and interaction of teachers and pupils in development of conditions for learning in secondary schools. Analysis of teaching learning process and investigation of studies of the teaching art.

170 Secondary School Administration for Teachers (2)

Prerequisites: Education 102 and 125. Problems of effective methods of school organization and management related to administration, finance, personnel, curriculum, guidance, in-service education, and evaluation.

231 Advanced Typewriting (5)

Prerequisite: Intermediate typing or equivalent. An intensive course on all forms of typewritten work including business and professional papers and forms, with emphasis on speed and accuracy. Training in the use of office machines, mimeograph, duplicators, dictating, and transcribing machines, adding-calculators, etc. (For Business Education majors only.)

233 Filing Systems and Records Management (2)

Prerequisite: Advanced Typing. Comprehensive study of basic filing rules; analysis and application of various record systems in the business office. (For Business Education majors only.)

235 Advanced Stenography and Secretarial Practice (6)

Prerequisite: Intermediate shorthand and transcription or equivalent. Intensive practice in speed dictation, reading, transcription, with attention to methods of establishing, standardizing, and controlling administrative systems, including forms control, charting work-flow, and office manuals. (For Business Education majors only.)

251 Laboratory: Elementary School Student Teaching (6)

Prerequisites: Education 131, 153, and 325. Classroom experience and student teaching in the elementary school under University supervision. Individual work and group conferences.

261 The Curriculum and Methods of Teaching Business and Commerce (3)

Prerequisites: Education 163 and a near-major in the subject matter. A study of the scope and sequence of the business and commercial 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 business and commerce. Recommended to be taken concurrently with Student Teaching.

262 The Curriculum and Methods of Teaching English (3) (Same as English 262.)

Prerequisites: 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 the techniques and research tools of the scholar in the fields of English. Recommended to be taken concurrently with Student Teaching.

- 263 **The Curriculum and Methods of Teaching Arts (3)**
Prerequisites: 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. Recommended to be taken concurrently with Student Teaching.
- 264 **The Curriculum and Methods of Teaching Foreign Language (3) (Same as Modern Languages 264.)**
Prerequisites: 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. Recommended to be taken concurrently with Student Teaching.
- 265 **The Curriculum and Methods of Teaching History and Social Studies (3) (Same as History 265.)**
Prerequisites: 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.) Recommended to be taken concurrently with Student Teaching.
- 266 **The Curriculum and Methods of Teaching Mathematics (3)**
Prerequisites: 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. Recommended to be taken concurrently with Student Teaching.
- 267 **The Curriculum and Methods of Teaching Music (3)**
Prerequisites: Education 163 and a near-major in the subject matter. A study of the scope and sequence of the music 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 music. Recommended to be taken concurrently with Student Teaching.
- 268 **The Curriculum and Methods of Teaching Physical Sciences (3)**
Prerequisites: 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. Recommended to be taken concurrently with Student Teaching.
- 269 **The Curriculum and Methods of Teaching the Life Sciences (3)**
Prerequisites: Education 163 and a near-major in the subject matter. 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. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science. Recommended to be taken concurrently with Student Teaching.
- 271 **Laboratory: Secondary School Student Teaching (6)**
Prerequisites: Education 163 and a major in the subject matter area. Classroom experience and student teaching in the secondary school under University supervision. Individual work and group conferences.
- 310 **Group Intelligence Testing (3)**
Prerequisites: Education 102 and Education 330 or equivalent. A study of the principles of psychometrics and a critical examination of various group tests of ability.
- 311 **Individual Intelligence Testing (3)**
Prerequisite: Education 310 or equivalent. Study of the Stanford-Binet Scale and other individual tests of intelligence. Practice in administering and interpreting the tests.
- 313 **The Psychology of Exceptional Children (3)**
Prerequisite: Education 102. A study of the special psychological problems of the child who deviates from the normal.

315 Principles of Early Childhood Education (3)

Prerequisites: Education 102 and 125. A study of the values and basic principles underlying good schools for young children. Intensive examination of planning daily programs, 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)

A study of and experiences with materials, techniques, and resources for promoting affective, 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)

A study of and experiences with materials, techniques, and resources for broadening the child's awareness and understanding of nature, science, spatial and quantitative relationships, and the world of places and things.

318 Exploring the Social World With Young Children (3)

A study of and experiences with materials, techniques, and resources for furthering the child's mastery of the skills of communication; his understanding of people, social roles, and various cultures; his ability to develop satisfying relationships with peers and adults.

320 Comparative Education (3)

Prerequisite: Education 125. A comparative study of representative systems of education in South America, Europe, and Asia in contrast with the American system.

322 The Origin of Modern Education (3)

Prerequisite: Education 125. A study of education practices and theory from ancient times to present. Emphasizes the historical setting of present-day education.

325 Teaching Reading in the Elementary School (3)

Prerequisites: Education 102 and senior standing. Objectives of reading instruction and standards of attainment; reading readiness; types of instruction; diagnostics and remedial techniques; the place of reading in the content subject; cultivation of interests in independent reading.

330 Educational Statistics (3)

Prerequisites: Education 102, 131 or 163. Statistical methods for teachers, supervisors, superintendents, and beginning graduate students. Frequency distributions, measures of central tendency, variability, sampling and correlation.

350 Elementary School Curriculum (3)

Prerequisite: Education 131. Survey of modern educational thought with regard to objectives, content, methods in elementary school curriculum.

352 Secondary School Curriculum (3)

Prerequisites: Education 163. For secondary school principals, teachers, and superintendents. Sources, scope, and organization of the curriculum, modern trends and methods of investigation.

360 Principles and Procedures for Student Personnel Work (3)

Prerequisite: Education 251 or 271 or equivalent. Student personnel work in educational institutions-objectives of student personnel work, certain pertinent techniques.

362 Occupational and Educational Information (3)

Prerequisite: Education 360. Nature, use of occupational and educational information. Characteristics, requirements of occupations, and training opportunities.

ENGLISH

CHARLES T. DOUGHERTY, Ph.D., *Chairman*, Professor

WILLIAM C. HAMLIN, Ph.D., Professor

G. BERT CARLSON, Ph.D., Assistant Professor

JAMES HAZEN, Ph.D., Assistant Professor

VALERIE LAGORIO, Ph.D., Assistant Professor

EUGENE MURRAY, Ph.D., Assistant Professor

JOHN T. UNUSKA, Ph.D., Assistant Professor

JANE WILLIAMSON, Ph.D., Assistant Professor

PETER WOLFE, Ph.D., Assistant Professor

JEROME GROLLMAN, M.H.L., Visiting Assistant Professor

DAVID L. AILEN, M.A., Instructor
 MARY BURGER, M.A., Instructor
 MARY ANN CAILANAN, M.A., Instructor
 ANN FISCHER, M.A., Instructor
 NANCY GLENN, M.A., Instructor
 WILLIAM GUNLOCK, M.A., Instructor
 MARY VERA JACKSON, M.A., Instructor
 KAREN JACOBS, M.A., Instructor
 GERALD KNOLL, M.A., Instructor CAROL
 KRAUSE, M.A., Instructor THOMAS
 LYONS, M.A., Instructor GERALD
 O'GoRMAN, M.A., Instructor
 JANE PARKS, M.A., Instructor
 JOHN SCHAEFFER, M.A., Instructor
 GERALD SCHIFFHORST, M.A., Instructor

Prerequisites may be waived by consent of the department.

- 10 Composition (3)**
 Theory and practice of writing expository prose. English 10 and 12 or the equivalent are prerequisites for all courses in literature and must be taken during freshman year. STAFF.
- 12 Literary Types (3)**
 The student is introduced to all of the various literary types including poetry, drama, fiction, and the essay. This course may be taken concurrently with or preceding English 10 or in the semester immediately following English 10. ALLEN, HAMLIN.
- 50 Narration (3)**
 Prerequisites: English 10 and 12 or equivalent. Theory and practice of writing the short story. STAFF.
- 65GH Honors Exposition (3)**
 Prerequisite: Honors qualification on placement examinations. Expository theory and practice for freshmen. Students who pass English 65GH with a grade of C or better satisfy the English 10 and 12 requirement. Students who pass English 65GH with a B or better receive 3 hours additional credit for a total of 6 hours in composition and literature. STAFF.
- 101 Effective Speaking (3)**
 Prerequisite: Sophomore standing. Emphasis on effective oral communication, formal and informal. Theories and techniques of argument and persuasion, organization, evidence, delivery. FISCHER.
- 115 Commercial Writing (3)**
 Prerequisites: English 10 and 12 or equivalent. Emphasis is placed upon news writing, newspaper feature writing, magazine article writing, and book reviewing. STAFF.
- 120 Classical Literature in Translation (3)**
 Prerequisites: English 10 and 12 or equivalent. A study of classical literature from Homer through Quintilian, including such major figures as Sophocles, Plato, Aristotle, Cicero, and Vergil.
- 125 Literature of the Old Testament (3)**
 Prerequisites: English 10 and 12 or equivalent. A comprehensive understanding of the *Old Testament*, its literary background and significance for western civilization. GROLLMAN.
- 135 Major British Authors (3)**
 Prerequisites: English 10 and 12 or equivalent. Representative selections from principal English writers from the Old English period to the present. STAFF.
- 160 Advanced Expository Writing (3)**
 Prerequisites: English 10 and 12 or equivalent. Emphasis is placed upon developing the critical and analytical capabilities of the writer. Course offers an introduction to research methods. STAFF.
- 175 American Literature (3)**
 Prerequisite: English 10 and 12 or equivalent. Representative selections from principal American writers from seventeenth century to the present. CARLSON, HAMLIN, WOLFE.
- 190 Readings in American Literature (3)**
 Prerequisites: English 175 and consent of instructor. Readings on a topic mutually acceptable to student and instructor. STAFF.

- 191 Readings in English Literature (3)
Prerequisites: English 135 or equivalent, and consent of instructor. Readings on a topic mutually acceptable to student and instructor. STAFF.
- 192 Senior Readings (3)
Prerequisite: Consent of department. Required for all senior Arts and Sciences English majors. Directed readings in an area mutually acceptable to student and instructor. STAFF.
- 193 Senior Seminar (3)
Prerequisite: Consent of department. Required for all senior Arts and Sciences English majors. Directed reading and research, one product of which shall be a formal paper. STAFF.
- 220 **Growth and Structure of the English Language (3)**
Prerequisites: English 10 and 12 or equivalent. The historical development of the language from its beginnings to the present, concluding with an examination of the English language in America. Some supplementary reading in translation of Old and Middle English literary works. LAGORIO.
- 262 **The Curriculum and Methods of Teaching English (3) (Same as Education 262.)**
Prerequisites: 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. WILLIAMSON.
- 310 **English and German Romanticism (3) (Same as German 310.)**
Prerequisite: English 135. Comparative study of prominent romantic writers in English and German literature. Knowledge of German not required. DOUGHERTY, UNGER.
- 315 Literary Criticism (3)
Prerequisite: English 115 or 175 or equivalent. Historical survey of the principles of literary criticism from Plato to the present. HAMLIN, HAZEN, WOLFE.
- 324 **Chaucer and the Middle English Writers (3)**
Prerequisite: English B5 or equivalent. Course is concerned primarily with Chaucer's poetry, but concentrates on the *Canterbury Tales* in particular. All readings in the original. LAGORIO.
- 328 Medieval Romance and Drama (3)
Prerequisite: English 135 or equivalent. A study of representative medieval romances. Also, a reading of selected English drama from its beginnings to 1600. LAGORIO.
- 331 Elizabethan Poetry and Prose (3)
Prerequisite: English 135 or equivalent. A survey of non-dramatic literature of the sixteenth century, including Ascham, Elyot, Wyatt, Surrey, Spencer, Daniel, and Drayton. UNUSKA, WILLIAMSON.
- 337 **Shakespeare and the Elizabethan Dramatists (3)**
Prerequisite: English 135 or equivalent. Critical reading of the tragedies of William Shakespeare and contemporaries. Special attention to Shakespeare's development as a dramatist and to the intellectual milieu of the plays. UNUSKA, WILLIAMSON.
- 338 Shakespeare and the Elizabethan Dramatists (3)
Prerequisite: English 135 or equivalent. Critical reading of the comedies and histories of William Shakespeare. Some selections from his contemporaries. Special attention to Shakespeare's development as a dramatist and to the intellectual milieu of the plays. UNUSKA, WILLIAMSON.
- 344 **Seventeenth Century Literature (3)**
Prerequisite: English 135 or equivalent. Emphasis is on the non-dramatic literature of the seventeenth century. The principal figures are Milton, Donne, Herbert, Marvell, and Dryden, with some attention to Bacon, Burton, Browne, and the Commonwealth prose writers. UNUSKA, WILLIAMSON.
- 346 Seventeenth and Eighteenth Century Drama (3)
Prerequisite: English 135 or equivalent. Critical reading of the dramatic literature of the late Renaissance, Restoration, and Post-Restoration periods. UNUSKA, WILLIAMSON.
- 350 Special Readings (1-3)
Prerequisites: 300-level course in area of proposed work and consent of instructor. Individual work, with conferences adjusted to needs of the student. STAFF.
- 354 Eighteenth Century Literature (3)
Prerequisite: English 135 or equivalent. Critical reading of selections from Pope, Swift, Addison, Steele, Gray, Johnson, Burke, and others. LAGORIO.

363 The English Novel (3)

Prerequisites: English 10 and 12 or equivalent. Study of major English novels from the eighteenth century. The approach is principally analytical, with attention to historical development. DOUGHERTY, HAMLIN, HAZEN, MURRAY, WOLFE.

370 Prose and Poetry of the Romantic Period (3)

Prerequisite: English 135 or equivalent. Critical reading of selections from Blake, Wordsworth, Coleridge, Lamb, Hazlitt, Byron, Shelley, Keats, and others. Also selected eighteenth century writers serve as background material. DOUGHERTY, HAZEN, MURRAY.

371 Prose and Poetry of the Victorian Period (3)

Prerequisite: English 135 or equivalent. Critical reading of selections from Tennyson, Browning, Arnold, Hopkins, and others, in addition to selections from the major prose writers. DOUGHERTY, HAZEN, MURRAY.

373 Major American Writers I (3)

Prerequisites: English 10 and 12 or equivalent. American literature of the nineteenth century centering around such figures as Emerson, Hawthorne, Melville, Poe, and Whitman. CARLSON, HAMLIN.

374 Major American Writers II (3)

Prerequisites: English 10 and 12 or equivalent. American literature of the late nineteenth and twentieth centuries centering around such figures as James, Dickinson, Crane, Jeffers, Faulkner, and others. CARLSON, HAMLIN.

377 The American Novel (3)

Prerequisites: English 10 and 12 or equivalent. A study of representative American novels of the nineteenth and twentieth centuries. CARLSON, HAMLIN.

383 Modern Fiction (3)

Prerequisite: English 135 or 175 or equivalent. Critical reading and analysis of selected British and American fiction of the twentieth century. HAMLIN, HAZEN, WOLFE.

384 Modern Poetry (3)

Prerequisite: English 135 or 175 or equivalent. Critical reading and analysis of selected British and American poetry of the twentieth century. HAMLIN, HAZEN, WOLFE.

FINE ARTS

KENNETH E. MILLER, Ph.D., Associate Professor of Music
EDWARD L. KORNEK, Ph.D., Associate Professor of Music
MICHAEL B. HARPER, M.A., Instructor in Art History
THEODORE LUCAS, M.A., Instructor in Music
NANCY McBRIDE, M.A., Instructor in Art History

Prerequisites may be waived by consent of the department.

Art History

1 Masterpieces of Art (3)

Illustrated discussion with examples from varied historic and contemporary art fields on the nature of art, functions and methods of creative expression. No credit for Art History majors. HARPER, STAFF.

101 History of Western Art (3)

Prerequisite: Sophomore standing or consent of department. Illustrated lectures and discussion of the architecture, sculpture, painting of Greece, Rome, and Medieval Europe. Required for the major in Art History. HARPER, STAFF.

102 History of Western Art (3)

Prerequisite: Sophomore standing or consent of department. Illustrated lectures and discussion of the general development of art and architecture from the fourteenth century to the present. Required for the major in Art History. HARPER, STAFF.

123 Classical Art and Archaeology of Greece and Rome (3)

Prerequisite: Sophomore standing or consent of department. A general survey of the development of material culture in Greece and Rome from the earliest times through the Hellenistic Period and through the early Roman Empire. Required for the major in Art History. STAFF.

A study of art principles; provides laboratory experiences with various media and materials. Stresses curriculum planning and development of the elementary school program in art. **STAFF.**

Prerequisite: Art 1 or 101. The secular as well as religious art of the Middle Ages from the early Christian era through the late Gothic Period. HARPER.

Prerequisite: Art 1 or 102. The artistic culture of Western Europe during the fifteenth and sixteenth centuries from the development of the new style in Italy to its throughout

HARPER

Prerequisite: Art 1 or 102. Art in Europe from the sixteenth century to the end of the eighteenth century, with emphasis on the painters Rembrandt, Velazquez, Poussin, the sculptor Bernini, and the architectural undertaking of the Palace of Versailles. STAFF.

Prerequisites: Art 1 or consent of the department. A survey of the art of the United States, both as an extension of the European tradition and for its original contributions. STAFF.

Prerequisite: Art 1 or consent of department. The sources of the modern movement in the nineteenth century beginning with Neo-Classicism and Romanticism, the subsequent development of Impressionism and Post-Impressionism, and finally the twentieth century with Cubism, Expressionism, and Abstract Art. STAFF.

Applied Music

One hour of credit will be granted for a minimum of one half-hour lesson each week and one hour of daily practice. Applied study is offered in the following areas: Baritone, Bassoon, Clarinet, Flute, French Horn, Oboe, Organ, Percussion, Piano, Saxophone, String Bass, Trombone, Trumpet, Tuba, Viola, Violin, Violoncello, and Voice. STAFF.

Prerequisite: Consent of the instructor. Preparation and public performance of choral master pieces. MILLER.

Prerequisite: Consent of the instructor. Open to all qualified students who play a wind, percussion, or stringed instrument. STAFF.

Introduction to the study of musical style, including a detailed study of selected works from the Renaissance to the twentieth century. This course will not apply toward requirements for a music major. **STAFF.**

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. STAFF.

Basic vocabulary: scales, intervals, triads, and seventh chords. Techniques of analyzing and writing music. Systematic instruction in ear training, sight-singing, and melodic, rhythmic, and harmonic aspects of music-reading. Four class hours each week. LucAs, STAFF.

Prerequisite: Music 3 or consent of the department. Continuation of Music 3. LUCAS, STAFF.

Prerequisite: Sophomore standing or consent of the department. A general survey of the history of western music from the Greek period to the eighteenth century. Evolution of forms, styles, and media. Attention to harmonic and contrapuntal devices, orchestration, and other stylistic features of the time. MILLER, STAFF.

- 102 History of Western **Music** (3)
Prerequisite: Sophomore standing or consent of the department. Continuation of Music 101 to the present. MILLER, STAFF.
- 111 Theory of **Music** (3)
Prerequisite: Music 4 or consent of the department. Altered chords and modulation. Application of vocabulary and techniques to music of the eighteenth and nineteenth centuries. Composition in simple forms. LUCAS.
- 112 Theory of **Music** (3)
Prerequisite: Music 111 or consent of the department. Continuation of Music 111. LUCAS.
- 134 Introduction to the Theory of Music (2)
An introductory course in the rudiments of music, which is specifically designed to meet the needs of the elementary classroom teacher. Systematic training in the fundamentals of music and their application. This course will not apply toward requirements for a music major. STAFF.
- 137 Elementary School Music (2) (Same as Education 137.)
Prerequisite: Music 134 or consent of the department. Basic musical preparation for all students preparing for elementary school teaching. Development of the elementary school music program, with emphasis on selection of music and methods of teaching music to children. This course will not apply toward requirements for a music major. STAFF.
- 321 Music of the Middle Ages and Renaissance (3)
Prerequisite: Music 1 or consent of the department. A detailed study of styles and forms from the beginnings of polyphony to the close of the sixteenth century. KOTTICK.
- 322 Music of the Baroque Period (3)
Prerequisite: Music 1 or consent of the 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. KOTTICK, STAFF.
- 323 Music of the Romantic Period (3)
Prerequisite: Music 1 or consent of the department. Composers, forms, and styles from Beethoven through the early twentieth century. Late eighteenth century background of romantic music, nationalist currents, and impressionism. KOTTICK.
- 325 Music of the Classic Period (3)
Prerequisite: Music 1 or consent of the department. A detailed study of music, including the style galant and the growth of the classical style; the works of Haydn, Mozart, and early Beethoven. KOTTICK.
- 326 Music of the Twentieth Century (3)
Prerequisite: Music 1 or consent of the department. A detailed study of trends in contemporary music; post-romanticism and neo-romanticism; nationalism; impressionism, expressionism, twelve-tone technique, neo-classicism. KOTTICK, STAFF.

FRENCH (See MODERN FOREIGN LANGUAGES)

GERMAN (See MODERN FOREIGN LANGUAGES)

HISTORY

JAMES NEAL PRIMM, Ph.D., *Chairman*, Professor
 JAMES L. BUGG, JR., Ph.D., Professor
 GLEN R. DRISCOLL, Ph.D., Professor
 ROY GENE BURNS, JR., Ph.D., Associate Professor
 JAMES D. NORRIS, Ph.D., Associate Professor
 WILLIAM A. PERCY, JR., Ph.D., Associate Professor
 HAROLD EICKHOFF, Ph.D., Assistant Professor
 ARMAND D. ERICKSON, M.A., Assistant Professor
 NORMA ERICKSON, Ph.D., Assistant Professor
 HENRY E. FRIEDLANDER, M.A., Assistant Professor

SUSAN HARTMANN, Ph.D., Assistant Professor
 ROBERT McGLONE, Ph.D., Assistant Professor
 RICHARD W. RESH, Ph.D., Assistant Professor
 ARTHUR H. SHAFFER, Ph.D., Assistant Professor
 BLANCHE M. TOUHILL, Ph.D., Assistant Professor
 RICHARD DUNLAP, M.A., Instructor
 LINDA HENRY, M.A., Instructor
 ROBERT NEISON, M.A., Instructor
 FRANK WETTA, M.A., Instructor

- 1 European Civilization (3)
 Evolution of European cultural tradition from earliest times to the mid-seventeenth century. The relationship of ideas and institutions to the general historical background.
- 2 European Civilization (3) Continuation of History 1 to the present.
- 3 **American Civilization (3)**
 Evolution of the cultural tradition of the Americas from 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**.
- 4 **American Civilization (3)** Continuation of History 3 to the present.
- 192 Senior Readings (3)
Prerequisite: Consent of department. Required for all senior history majors. Directed readings in an area mutually acceptable to student and instructor.
- 193 **Senior Seminar (3)**
Prerequisite: Consent of department. Required for all senior history majors. Directed reading and research, one product of which shall be a formal paper.
- 210 Asian Civilization (3)
Prerequisite: Sophomore standing. The development of Asian civilization from the earliest times to the Manchu conquest.
- 211 **Asian Civilization (3)**
Prerequisite: Sophomore standing. Either 210 or 211 may be taken separately. Continuation of History 210, with emphasis on the Asian response to the Western incursion.
- 220 The Ancient Near East and Greece (3)
 A cultural survey of the civilizations of the Near East and Greece up to the fourth century B.C., with emphasis on social and economic trends.
- 221 The Hellenistic World and the Roman Empire (3)
 Major political events, and social and economic survey, analyzing the rise, decline, and fall of the Roman Empire.
- 265 The Curriculum and Methods of Teaching History and Social Studies (3) (Same as Education 265.)
Prerequisites: 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.
- 315 Twentieth Century Southeast Asia (3)
Prerequisite: Junior standing or consent of instructor. Emphasis on the decline of colonialism, the wars of national liberation, and the new nations of Southeast Asia today.
- 316 Twentieth Century East Asia (3)
Prerequisite: Junior standing or consent of instructor. Emphasis on Japanese expansion, the Chinese revolutions, and the rise of Mao.
- 320 The History of England from the Tudor Kings to the Congress of Vienna (3)
Prerequisites: History 1 and 2, or consent of the department. A study of the development of the English state and system of government, economics, and culture-(1485-1815).
- 321 The History of England from the Congress of Vienna to the Present Day (3)
Prerequisites: History 1 and 2, or consent of the department. A continuation of History 320.
- 330 Europe in the Seventeenth Century (3)
Prerequisites: History 1 and 2, or consent of the department. The growth of the modern state system; the origins of modern science.

- 331 Europe in the Eighteenth Century (3)
Prerequisites: History 1 and 2, or consent of the department. The Old Regime, the Enlightenment, the French Revolution and Napoleon.
- 332 Europe in the Nineteenth Century (3)
Prerequisites: History 1 and 2, or consent of the department. The major political, economic, and intellectual developments in _____ from the Congress of Vienna to the outbreak of World War I.
- 333 Europe in the Twentieth Century (3)
Prerequisites: History 1 and 2, or consent of the department. The impact of World Wars I and II; the search for equilibrium.
- 334 Europe in the Early Middle Ages (3)
Prerequisites: History 1 and 2, or consent of instructor. Fall of the Roman Empire, the Byzantine Empire, and reconstruction in the West.
- 335 Europe in the High Middle Ages and the Renaissance (3)
Prerequisites: History 1 and 2, or consent of instructor. Continuation of History 334. The Renaissance in Italy and the West.
- 340 History of Science (3)
Prerequisites: One laboratory science and six hours of history. The origins of science and scientific methodology. The interaction of science and non-science. Emphasis upon the Greeks, the Renaissance, the seventeenth century, and the nineteenth century.
- 350 Special Readings (credit arranged)**
Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences.
- 351 American Intellectual History (3)**
Prerequisites: History 3 and 4, or consent of the department. American intellectual development to 1865.
- 352 American Intellectual History (3)
Prerequisites: History 3 and 4, or consent of the department. Continuation of History 351.
- 353 United States History: Colonial America to 1763 (3)
Prerequisites: History 3 and 4, or consent of department. English background of colonization. Rise of distinctive New England and southern societies. English colonial policy to the Peace of Paris.
- 354 United States History: Revolution and the New Nation, 1763-1815 (3)
Prerequisites: History 3 and 4, or consent of department. The new colonial policy of Britain. Revolution and the new nation. Hamiltonians and Jeffersonians.
- 355 United States History: Jacksonian Democracy and Sectional Conflict, 1815-1865 (3)
Prerequisites: History 3 and 4, or consent of department. The Era of Good Feelings; the Age of Jackson; Manifest Destiny; sectional and cultural conflict; the Civil War.
- 356 United States History: Civil War to World War I (3)
Prerequisites: History 3 and 4. Economic, social, and political development of the United States, 1865 to World War I.
- 357 United States History: World War I to Present (3) Prerequisites:
History 3 and 4. A continuation of 356 to the present.
- 360 American Frontier History (3)**
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.
- 365 American Urban History (3)**
Prerequisites: History 3 and 4, or consent of department. American urban development from earliest times to 1865.
- 366 American Urban History (3)**
Prerequisites: History 3 and 4, or consent of department. Continuation of History 365 to the present.
- 367 Growth of the American Economy (3)**
Prerequisites: History 3 and 4, or consent of department. Economic factors in the development of American institutions, from the colonial period to the present. Emphasis is on banking, transportation, agriculture, and international trade.
- 368 Rise of Industrial America (3)**
Prerequisites: _____ 3 and 4, or consent of department. History of American business, industry, and labor.

- 375 Nineteenth Century Diplomatic History (3)
Prerequisites: History 1 and 2, or History 3 and 4. The foreign policy and diplomacy of nations in the nineteenth century, with central emphasis on Europe and the New Imperialism. Particular attention to the role of ideas in shaping foreign policy.
- 376 Twentieth Century Diplomatic History (3)
Prerequisites: History 1 and 2, or History 3 and 4. The foreign policy and diplomacy of nations in the twentieth century, with central emphasis on America and the New Diplomacy. Particular emphasis on the role of ideas in shaping foreign policy.
- 437 Britain and the Commonwealth (3)
The development of the British Commonwealth system, with emphasis on its political, economic, and intellectual aspects.
- 490 Graduate Readings in History (3)
Prerequisite: Consent of instructor. Intensive readings in primary and secondary materials in an area mutually acceptable to student and instructor.

MATHEMATICS

E. Z. ANDALAFTE, Ph.D., *Chairman*, Associate Professor

R. J. MIHALEK, Ph.D., Associate Professor

RAYMOND BALBES, Ph.D., Assistant Professor

MERLYN J. SEHR, Ed.D., Assistant Professor

PATRICK CASSENS, Ph.D., Assistant Professor

MARJORIE ENNEKING, Ph.D., Assistant Professor

WAYNE L. McDANIEL, Ph.D., Assistant Professor

FREDERICK W. WILKE, Ph.D., Assistant Professor

RUTH BOOTHBY, **M.A.**, Instructor

ROBERT C. CHEN, **M.A.**, Instructor

W. JAMES DILLON, M.A., Instructor

ROBERT F. EMNETT, M.S., Instructor

OWEN M. GLEESON, M.S., Instructor

HYLA E. GOLD, M.A., Instructor

DOROTHY HAIN, M.A., Instructor

FRANK LUEBBERT, M.S., Instructor

MARGOT PALLMANN, M.S., Instructor

MICHAEL SCROGGINS, M.A., Instructor

HAROLD TESSERAU, M.A., Instructor

Prerequisites may be waived by consent of the department

- 03 Basic Algebra (3)
Fundamentals of algebra for students who have two years or less of mathematics in high school, excluding general mathematics. No credit toward a degree.
- 10 College Algebra (3)
Prerequisite: (a) 2½ high school units of mathematics, including 1½ units of algebra, or (b) Mathematics 03. Review of fundamental concepts and topics from elementary algebra. Emphasis on polynomial functions and graphic representation of functions. Equations, systems of equations, inequalities, the binomial theorem, mathematical induction.
- 11 Elementary Transcendental Functions (3)
Prerequisites: Mathematics 10 or 2½ high school units of mathematics and consent of department. Introduction to trigonometric, inverse trigonometric, logarithmic, and exponential functions.
- 12 College Algebra and Transcendental Functions (5)
Prerequisite: 2½ high school units of mathematics, including 1½ units of algebra; or Mathematics 03. A combination of Mathematics 10 and 11.
- 15 Mathematics: Ideas and Structure (3)
Prerequisite: 2 high school units in mathematics, excluding general mathematics, or Mathematics 03. 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.

- 80 Analytic Geometry and Calculus I (5)**
 Prerequisites: Mathematics 10 and 11 or Mathematics 12; or four high school units of mathematics, including two units of algebra and $\frac{1}{2}$ unit of trigonometry, with grades of B or higher. Introduction to analytic geometry, differential calculus, and integral calculus. Courses 80, 175, and 201 are a sequence of courses which have integrated the material formerly contained in courses in plane and solid analytic geometry and differential and integral calculus.
- 104 Fundamentals of Digital Computer Programming (3)**
 Prerequisite: Mathematics 10 or equivalent. Principles of programming digital computers in machine, symbolic, and algebraic languages. Does not count toward a major in mathematics.
- 175 Analytic Geometry and Calculus II (5)**
 Prerequisite: Mathematics 80. Selected topics from plane analytic geometry and calculus.
- 201 Analytic Geometry and Calculus III (5)**
 Prerequisite: Mathematics 175. Solid analytic geometry and selected topics in calculus.
- 222 Digital Computer Methods (2)**
 Prerequisite: Mathematics 201 or concurrent registration. Study of digital computer systems, techniques of programming, and application to problems in the calculus. No credit to students having credit in Mathematics 104.
- 230 Theory of Equations (3)**
 Prerequisite: Mathematics 175 or consent of department. Solution of algebraic equations, systems of equations, relations among the roots, and numerical methods.
- 250 Introduction to Abstract Mathematics (3)**
 Prerequisite: Mathematics 201. An introduction to some of the fundamental ideas of abstract mathematics.
- 289 Mathematics Seminar (0-1)**
 Required of all mathematics majors in each of their last four semesters. Credit will be given in any semester in which a formal paper is presented.
- 301 Differential Equations (3)**
 Prerequisite: Mathematics 201. Common types of ordinary differential equations, including many applied problems, operational methods. Brief introduction to partial differential equations, boundary value problems.
- 310 Advanced Calculus I (3)**
 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.
- 311 Advanced Calculus II (3)**
 Prerequisite: Mathematics 310. Continuation of Mathematics 310.
- 316 Functions of a Complex Variable (3)**
 Prerequisite: Mathematics 310. Complex numbers and their geometrical representation, point sets, analytic functions of a complex variable, complex integration, Taylor and Laurent series. Residue Theorem, conformal mapping.
- 320 Mathematical Statistics (3)**
 Prerequisite: Mathematics 250 or consent of department. Introduction to theory of probability and statistics using concepts and methods of the calculus.
- 323 Numerical Analysis (3)**
 Prerequisite: Mathematics 201. Finite differences, numerical differentiation, integration, solution of equations and differential equations. Special reference to use of high speed computers.
- 335 Theory of Numbers (3)**
 Prerequisite: Mathematics 250 or consent of department. Properties of the integers, multiplicative functions, congruences, primitive roots, quadratic residues.
- 340 Introduction to Abstract Algebra (3)**
 Prerequisite: Mathematics 250 or consent of department. Introduction to theory of groups, rings, integral domains, fields, and polynomials over a field.
- 341 Linear Algebra and Matrices (3)**
 Prerequisite: Mathematics 250 or consent of department. A brief introduction to groups, vector spaces, matrices, determinants, bilinear and quadratic forms, and quadratic forms under groups.
- 350 Special Readings (credit arranged)**
 Prerequisites: Mathematics 250 and consent of instructor.
- 358 Mathematical Logic (3)**
 Prerequisite: Mathematics 250 or Philosophy 360 or consent of 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.

362 Projective Geometry (3)

Prerequisite: Mathematics 250 or consent of department. Analytic approach to the study of projective spaces. Theorems of Desargues, Pascal, and Brianchon. Projective properties of conics.

366 Foundations of Geometry (3)

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.

367 Introduction to Non-Euclidean Geometry (3)

Prerequisite: Mathematics 250 or consent of department. A summary of the history of the non-Euclidean geometries and a study of hyperbolic plane geometry.

380 Introduction to Topology (3)

Prerequisite: Mathematics 250 or consent of 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.

410 Theory of Functions of a Real Variable (3)

Prerequisite: Mathematics 310. The real number system, properties of functions of one or more real variables, mapping theorems. Introduction to measure and integration theory.

448 Topics in Algebra (3)

Prerequisites: Mathematics 340 and 341 and consent of department. Topics selected from the areas of groups, rings, fields, algebras, and other algebraic systems. May be taken more than once for credit with consent of department.

MODERN FOREIGN LANGUAGES AND LITERATURES

ENRIQUENOBLE, Ph.D., *Chairman*, Professor of Spanish
 MARCUS ALLEN, Ph.D., Associate Professor of French
 VLADIMIR N. BUTKOFF, M.A., Assistant Professor of Russian
 JOHN A. CREVIERE, M.A., Assistant Professor of French
 KAY ELLEN CUSHMAN, M.A., Assistant Professor of French
 MARY GUCKEL, Ph.D., Assistant Professor of German
 PAUL HOFFMAN, M.A., Assistant Professor of German
 MARION HOLT, Ph.D., Assistant Professor of Spanish
 BETTY ÜSIEK, Ph.D., Assistant Professor of Spanish
 RICHARD UNGER, Ph.D., Assistant Professor of German
 ZENAIDA GUTIÉRREZ VEGA, Ph.D., Assistant Professor of Spanish
 ALEXANDRA BUTKOFF, B.A., Instructor in Russian
 DAVID O. LIPP, M.A., Instructor in German
 JACQUELINE LONE, M.A., Instructor in Spanish
 ANNE PERRY, M.A., Instructor in French
 JOHN PISONI, M.A., Instructor in German
 NOEMI RAMIREZ, M.A., Instructor in Spanish
 ELBA REMMLING, M.A., Instructor in Spanish
 RAYMOND TAMANTINI, M.A., Instructor in Spanish
 PATRICIA WALKER, M.A., Instructor in French
 HARRIET WALLER, M.A., Instructor in French

Prerequisites in any language may be waived by committee of the department.

French

1 Elementary French (4)

Emphasis will be placed upon the speaking and understanding of French and upon the acquisition of the fundamentals of grammar and syntax. STAFF.

2 Elementary French (4)

Prerequisite: French 1 or equivalent. Continuation of French 1. STAFF.

101 Intermediate French (3)

Prerequisite: French 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections. STAFF.

- 102 Intermediate French (3)
Prerequisite: French 101 or equivalent. Further development of language skills through the reading and discussion of literary texts. May be taken concurrently with French 106, after consultation with instructor. STAFF.
- 106 Composition and Conversation (3)
Prerequisite: French 102 or equivalent. A review of grammar and written composition combined with oral work and the discussion of copies assigned in advance. May be taken concurrently with French 201. STAFF.
- 107 Advanced Composition and Conversation (3)
Prerequisite: French 106 or equivalent. Continuation of French 106, with emphasis being placed upon more advanced composition as an introduction to essay writing. STAFF.
- 110 French Literature in Translation (3)**
Prerequisite: Sophomore standing. Not open to French majors. Lectures on the literature and culture of France from the Middle Ages to the contemporary period. Reading and discussion of selected masterpieces, with particular emphasis upon classicism, Romanticism and realism. STAFF.
- 190 Senior Readings (3)**
Directed readings in an area mutually acceptable to student and instructor. Required for all senior French majors. Other seniors admitted by permission of the instructor. STAFF.
- 191 Senior Seminar (3)**
Required for all senior French majors. Subject to be announced every year by instructor in charge of seminar. STAFF.
- 200 Syntax of the French Language (3)**
Prerequisite: French 107. Study of the syntactical and morphological characteristics of the French language as seen in representative selections from French literature. Designed primarily and required for students majoring in French. May be taken concurrently with any 200 level course. CREVIÈRE.
- 201 Introduction to French Literature (3)**
Prerequisite: French 102 or equivalent. Designed to acquaint the student with the development of French literature from the *Chanson de Roland* to the Age of Enlightenment. Critical reading of representative texts. CUSHMAN.
- 202 Introduction to French Literature (3)**
Prerequisite: French 201. Continuation of French 201. Selected readings from the romantic period to the present. Cushman.
- 264 Curriculum and Methods of Teaching Foreign Languages (3) (Same as Education 264.)**
Prerequisites: 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. USIEK.
- 350 Special Readings in French Literature (credit arranged)**
Prerequisite: Consent of the instructor. Independent study through readings, reports, and conferences. Readings to be determined by the instructor. STAFF.
- 351 Seventeenth Century French Drama (3)**
Prerequisite: French 201. Critical reading of selected plays by Corneille, Molière, and Racine. CUSHMAN.
- 352 Seventeenth Century Prose and Poetry (3)**
Prerequisite: French 201. A critical study of representative prose writers and poets. Particular emphasis upon Pascal and Descartes. Cushman.
- 353 Eighteenth Century French Literature (3)**
Prerequisite: French 201. The philosophic movement. Selected works from Montesquieu, Voltaire, Diderot, and Rousseau. ALLEN.
- 361 Nineteenth Century French Literature: Romanticism (3)
Prerequisite: French 201. Critical reading of selected works from poetry, the drama, and the novel. May be taken concurrently with French 202. ALLEN.
- 362 Nineteenth Century French Literature: Realism and Naturalism (3)**
Prerequisite: French 201. The development of realism and naturalism. Particular emphasis upon Flaubert, Balzac, and Zola. ALLEN.
- 371 Twentieth Century French Literature: The Novel (3)
Prerequisite: French 202. A study of the novel from Proust and Gide to the present. CREVIÈRE.

372 **Twentieth Century French Literature: The Theater** (3)

Prerequisite: French 202. A study of the leading dramatists, with special emphasis upon Anouilh, Claudel, Giraudoux, Camus, and Sartre. CREVIERE.

German

1 Elementary German (4)

Emphasis will be placed upon the speaking and understanding of German and upon the acquisition of the fundamentals of grammar and syntax. STAFF.

2 Elementary German (4)

Prerequisite: German 1 or equivalent. Continuation of German 1. STAFF.

101 Intermediate German (3)

Prerequisite: German 2 or **equivalent**. Grammar review and cultivation of language skills through the study of moderately difficult prose selections. STAFF.

102 Intermediate German (3)

Prerequisite: German 101 or equivalent. Further development of language skills through the reading and discussion of **literary** texts. May be taken concurrently with German 106, after consultation with the instructor. STAFF.

106 Composition and Conversation (3)

Prerequisite: German 102 or equivalent. A review of grammar and written composition combined with oral work and the discussion of topics assigned in advance. May be taken concurrently with German 201. STAFF.

107 Advanced Composition and Conversation (3)

Prerequisite: German 106 or equivalent. Continuation of German 106, with emphasis **being** placed upon more advanced composition as an introduction to essay writing. STAFF.

110 Masterpieces of German Literature in Translation (3)

Prerequisite: Sophomore standing. Not open to students majoring in German. Representative readings in German literature from the beginnings to the present. Emphasis to be placed upon German literature in the general context of European culture. STAFF.

190 Senior Readings (3)

Required for all senior German majors. Directed readings in an area mutually acceptable to **student** and instructor. Other seniors admitted by permission of the instructor. STAFF.

191 Senior Seminar (3)

Required for all senior German majors. Subject to be announced every year by the instructor in charge of seminar. STAFF.

200 Syntax of the German Language (3)

Prerequisite: German 107. Study of the syntactical and morphological characteristics of the German language as seen in representative selections from **German** literature. Designed primarily and required for students majoring in German. May be taken concurrently with any 200 level course. GUCKEL.

201 Introduction to German Literature (3)

Prerequisite: German 102. Study of selected texts of German writers from the origins to 1800, and the historical, cultural, and political factors which influenced their writings. Required for German majors.

202 Introduction to German Literature (3)

Prerequisite: German 201. Continuation of German 201. Selected texts from 1800 to the present, and the historical, cultural, and political factors which influenced their authors. Required for German majors. GUCKEL.

264 The Curriculum and Methods of Teaching Foreign Languages (3) (Same as Education 264.)

Prerequisites: 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. ÜSIEK.

300 German Literature of the Eighteenth Century (3)

Prerequisite: German 202. Enlightenment, Empfindsamkeit, and Storm and Stress as reflected in literature. Selections from Lessing, Klopstock, Herder, Nicolai, Lenz, and others. HOFFMAN.

310 German and English Romanticism (3) (Same as English 310.)

Comparative study of prominent romantic writers in English and German literature. Knowledge of German not required. Recommended for German majors after taking German 202. UNGER, DOUGHERTY.

315 German Lyric Poetry from the Eighteenth Century to the Present (3)

Prerequisite: German 202. Analysis and interpretation of poems by Goethe, Hölderlin, Novalis, Heine, Rilke, Benn, and others. UNGER.

320 The German Novelle and Drama of the Nineteenth Century (3)

Prerequisite: German 202. A critical examination of representative works by Grillparzer, Hebbel, Keller, Stifter, Storm, **Mayer**, Hauptmann, and others, with emphasis on literary movements and techniques of the **period**. GUCKEL.

330 The German *Novelle* and Drama of the Twentieth Century (3)

Prerequisite: German 202. A critical examination of major works by Hofmannsthal, Mann, Kafka, Brecht, Dürrenmatt, Böll and others, with **emphasis** on movements and literary techniques employed in the encounter with twentieth century reality.

340 **Goethe** (3)

Prerequisite: German 300. A detailed study of the author's life through the medium of his major works. Emphasis on the reading of Part I and II of *Faust*. HOFFMAN.

350 Special Readings (credit arranged)

Prerequisite: Consent of the instructor. Readings to be determined by instructor. **Independent** study through **readings**, reports, and conferences. STAFF.

Russian

1 Elementary Russian (4)

Acquisition of basic language skills. Presentation of the sound system, basic vocabulary, and grammar. BUTKOFF.

2 Elementary Russian (4)

Prerequisite: Russian 1 or equivalent. Continuation of Russian 1. BUTKOFF.

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. BUTKOFF.

102 Intermediate Russian (3)

Prerequisite: Russian 101 or equivalent. Continuation of Russian 101. BUTKOFF.

110 Nineteenth Century Russian Literature in Translation (3)

Readings of representative works drawn from the Nineteenth Century Russian literature up to 1845. Course to focus upon works of Pushkin, Lermontov, and Gogol. Lectures and discussion. BUTKOFF.

111 Nineteenth Century Russian Literature in Translation (3)

Readings of representative works drawn from Nineteenth Century Russian literature after 1845. Course to focus upon works of Turgenev, Doszoyevsky, Tolstoy, and Chekhov. Lectures and discussion. BUTKOFF.

Spanish

1 Elementary Spanish (4)

Emphasis **will** be placed upon the speaking and understanding of Spanish and upon the acquisition of the fundamentals of grammar and syntax. STAFF.

2 Elementary Spanish (4)

Prerequisite: Spanish 1 or equivalent. Continuation of Spanish 1. STAFF.

101 Intermediate Spanish (3)

Prerequisite: Spanish 2 or equivalent. Grammar review and cultivation of language skills through the study of moderately difficult prose selections. STAFF.

102 Intermediate Spanish (3)

Prerequisite: Spanish 101 or equivalent. Further development of language skills through the reading and discussion of literary texts. May be taken concurrently with Spanish 106, after consultation with instructor. STAFF.

106 Composition and Conversation (3)

Prerequisite: Spanish 102 or equivalent. A review of grammar and written composition combined with oral work and the discussion of topics assigned in advance. May be taken concurrently with Spanish 201. STAFF.

107 Advanced Composition and Conversation (3)

Prerequisite: Spanish 106 or equivalent. Continuation of Spanish 106, with emphasis on more advanced composition as an introduction to essay writing. STAFF.

110 Spanish Literature in Translation (3)

Prerequisite: Sophomore standing. Not open to Spanish majors. 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, Calderon, Galdés, Unamuno, Ortega, Garcia Lorca, Cela, and others. STAFF.

111 Spanish American Literature in Translation (3)

Prerequisite: Sophomore standing. Not open to Spanish majors. Lectures on the literature and culture of Spanish America. Reading and discussion of works of representative poets, novelists, and essayists of the contemporary period. STAFF.

190 Senior Readings (3)

Directed readings in an area mutually acceptable to the student and instructor. Required for all Spanish majors. Other seniors admitted by permission of the instructor. STAFF.

191 Senior Seminar on Hispanic Literature (3)

Required of major students in the senior year. Subject to be announced every year by the instructor in charge of the seminar. STAFF.

200 Syntax of the Spanish Language (3)

Prerequisite: Spanish 107. Study of the syntactical and morphological characteristics of the Spanish language as seen in representative selections from Hispanic Literature. Designed primarily and required for students majoring in Spanish. May be taken concurrently with any 200 level course. RAMÍEZ.

201 Introduction to Hispanic Literature: Spain (3)

Prerequisite: Spanish 102. Study of selected texts of Spanish writers from the Middle Ages to the present and the historical, cultural, and political factors which influenced their writings. Required for Spanish majors. RAMÍEZ.

202 Introduction to Hispanic Literature: Spanish America (3)

Prerequisite: Spanish 201. 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. REMMLING.

264 The Curriculum and Methods of Teaching Foreign Languages (3) (Same as Education 264.)

Prerequisites: 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. OSIEK.

300 Poetry and Drama of the Golden Age (3)

Prerequisite: Spanish 201. 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, Gongora, Lope de Quevedo. GUTIÉRREZ.

301 Cervantes (3)

Prerequisite: Spanish 201. 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. GUTIÉRREZ.

303 Literature of the Eighteenth Century (3)

Prerequisite: Spanish 201. A study of the culture and literature of Spain during this century. Reading and discussion of representative writers: Feijoo, Luzán, Jovellanos, Cadalso, Forner, el Padre Isla, Quintana, Moratín, and others. TAMANTINI.

306 Literature of the Nineteenth Century (3)

Prerequisite: Spanish 201. The poetry and the novel of the Nineteenth Century leading to the crisis of the Generation of '98 and their view of the "Spanish Problem." TAMANTINI.

307 Novel and Essay of the Twentieth Century (3)

Prerequisite: Spanish 201. Novelists: Unamuno, Blasco Ibáñez, Valle Inclán, Azorín, Baroja, Pérez de Ayala, Miró, Sender. Essayists: Unamuno, Azorín, Ortega, Emralgo, Marías, Aranguren. NOBLE.

310 Drama and Poetry of the Twentieth Century (3)

Prerequisite: Spanish 201. A study of the development and aesthetics of Spanish drama and poetry from 1900 until 1936, with emphasis on the contributions of major figures: Benavente, Grau, García Lorca, Juan Ramón Jiménez, Antonio Machado, and others. HOLT.

315 Contemporary Spanish Literature (3)

Prerequisite: Spanish 201. A study of the Spanish novel, drama, and poetry from 1939 to the present, with emphasis on the contributions of major figures: Cela, Matute, Buero, Blas de Otero, Casona, Salinas, Guillén, Alberti, and others. HOLT.

318 Spanish American Poetry and Essay of the Nineteenth Century (3)

Prerequisite: Spanish 202. Study of representative selections from the works of major poets and essayists. Emphasis on *Mockmismo*. ÜSIEK.

321 Spanish American Novel and Short Story of the Nineteenth Century (3)

Prerequisite: Spanish 202. Reading and analysis of representative figures and works from the novel and short story of this century. ÜSIEK.

324 Spanish American Poetry and Essay of the Twentieth Century (3)

Prerequisite: Spanish 202. A study of the leading poets and essayists as interpreters of contemporary man's dilemma and the "pathos" and "ethos" of contemporary Spanish American society. NOBLE.

327 Spanish American Novel and Short Story of the Twentieth Century (3)

Prerequisite: Spanish 202. A study of the leading prose fiction writers as interpreters of their society and the recent novel of universal themes. GUTIERREZ.

350 Special Readings in Hispanic Literature (credit arranged)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. Readings to be determined by the instructor. STAFF.

MUSIC (See FINE ARTS)

PHILOSOPHY

JAMES F. DOYLE, Ph.D., *Chairman*, Associate Professor

EDWARD B. COSTELLO, Ph.D., Associate Professor

DONALD E. DAMHORST, Ph.D., Associate Professor

J. RONALD MUNSON, Ph.D., Assistant Professor

JOHN M. WALKER, Ph.D., Assistant Professor

KENNETH YOUNG, M.A., Assistant Professor

KAY BRKSON, M.A., Instructor

JOHN E. CLIFFORD, M.A., Instructor

WILLIAM J. DEANGEUS, M.A., Instructor

50 Major Questions in Philosophy (3)

Critical exploration of fundamental questions concerning human nature, value judgment, knowledge, reality, and religious experience.

60 Logic and Language (3)

A study of reasoning, emphasizing ways of clarifying language and thought through detection of ambiguity, vagueness, and fallacies.

101 Approaches to Ethics (3)

Prerequisite: Freshmen admitted by consent of department. Traditional and contemporary approaches to an understanding of moral choice and appraisal, the conditions of moral conduct, and relations between individual and social ethics.

102 Philosophy of Religion (3)

Prerequisite: Freshmen admitted by consent of department. A philosophical investigation of problems posed by religion, such as the nature of religious faith, action, and experience; the relation of faith and reason; alternative concepts of deity; and the problem of evil.

105 Philosophical Ideas in Literature (3)

Prerequisite: Freshmen admitted by consent of department. Critical reading and discussion of selected literary classics in terms of their philosophical insights.

- 160 **Formal Logic (3)**
Prerequisite: Freshmen admitted by consent of department. An introductory formal study of deductive inference in syllogistic and contemporary logic. Emphasis is placed on contemporary problems, including the logical structure of language and construction of proofs.
- 170 **Asian Philosophy (3)**
Prerequisite: Freshmen admitted by consent of department. Critical study of selected philosophical classics of India and China.
- 192 **Senior Readings (3)**
Required for all senior majors in philosophy. Directed readings on a topic mutually acceptable to student and instructor.
- 193 **Senior Seminar (3)**
Required for all senior majors in philosophy. Subject to be announced each year by instructor in charge of seminar.
- 201 **Ancient Philosophy (3)**
Prerequisite: Freshmen admitted by consent of department. The principal philosophical doctrines of the ancient world, from the Pre-Socratics to Plotinus. Emphasis is placed on the philosophies of Plato and Aristotle.
- 202 **Medieval and Renaissance Philosophy (3)**
Critical study of major philosophical issues and contributions, from Augustine to the Renaissance.
- 203 **Early Modern Philosophy (3)**
Principal figures in the development of rationalism, empiricism, and skepticism in early modern Europe, from Descartes to Kant.
- 204 **Nineteenth Century Philosophy (3)**
Study of the conflict of idealistic, materialistic, utilitarian, and irrationalist philosophies of the nineteenth century, from Kant to J. S. Mill, and from Hegel to Nietzsche.
- 205 **Twentieth Century Philosophy (3)**
The major issues and trends in contemporary philosophy, presented through selected readings from pragmatism, logical positivism, process philosophy, linguistic analysis, and existentialism.
- 220 **American Philosophies of Education (3)**
Significant contributions by American philosophy to an understanding of the concepts, aims, and principles of education.
- 225 **Philosophy of Art and Criticism (3)**
A study of the nature and functions of art as a human activity, relations among the various arts, and the foundations of literary and art criticism.
- 230 **Social and Political Philosophy (3)**
Major philosophical theories regarding the basis of human communities, the aims which they serve, and the role of politics in securing these aims.
- 250 **Philosophy of Science (3)**
An examination of typical philosophical issues raised by the sciences, including the presuppositions of scientific inquiry, types of scientific explanation, freedom and determinism, and the impact of science on human values.
- 260 **Philosophy of History (3)**
A systematic study of issues relating to historical explanation, objectivity, and the meaning of world history.
- 301 **Plato and Neo-Platonism (3)**
An intensive study of Plato's writings with emphasis on his ethics, theory of knowledge, and metaphysics and of selected philosophers on whom Plato has had a significant influence.
- 302 **Aristotle and His Influence (3)**
A detailed critical study of Aristotle's metaphysics, physics, psychology, and ethics, together with an attempt to assess his influence on later philosophy.
- 305 **Modern Rationalism (3)**
An examination of rationalism as a modern philosophical tradition, and especially its classical formulations by Descartes, Spinoza, and Leibniz.
- 306 **British Empiricism (3)**
An investigation of the sources of empiricism as a philosophy, its classical development by Locke, Berkeley, and Hume, and a few of its more recent manifestations.

307 Kant's Philosophy and the Modern World (3)

The critical idealism of Kant, with special reference to his theory of knowledge and moral philosophy. Study of Kant's impact on epistemology, ethical theory, and recent conceptions of science and mathematics.

308 Hegel and the Idealist Tradition (3)

Absolute idealism as developed by Hegel, Fichte, and their followers. Concentration on metaphysics and theory of knowledge, together with an exploration of Hegel's influence on pragmatism, existentialism, and British philosophy.

310 Pragmatism (3)

An intensive study of pragmatism as developed by Peirce, James, Dewey, and more recent proponents.

315 Existentialism and Phenomenology (3)

Critical study of the major existentialist philosophers from Kierkegaard to the present, together with the phenomenology of Husserl and his followers.

318 Philosophy of Mind (3)

Analysis of mental concepts, such as consciousness, perception, action, and intention, as a basis for understanding the relation between mind and body, the basis of personal identity, and knowledge of other minds.

320 Theories of Knowledge (3)

A systematic study of major philosophical theories regarding the sources, methods, and grounds of knowledge.

321 Systematic Metaphysics (3)

Critical examination of selected problems in the theory of being, such as levels of reality, essence and existence, nature of deity, and the aims, methods, and limitations of metaphysics.

325 Recent Ethical Theory (3)

Intensive study of major contributions to twentieth century ethics, including works by Moore, Dewey, Ross, Stevenson, and Hare.

330 Philosophy of Language (3)

A systematic analysis of language and its uses, meaning and its various modes, definition, metaphor, and symbolism.

350 Special Readings (credit arranged)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences.

360 Advanced Formal Logic (3)

Rigorous study of major developments in a variety of contemporary logical systems. Emphasis is given to theoretical problems in logic, and some attention to philosophical issues arising from logic.

369 The Marxist Heritage (3) (Same as Political Science 369 and Economics 369.)

An interdisciplinary study of Marx and leading Marxists, designed to evaluate their influence on recent political, economic, and social thought and institutions.

PHYSICS (See SCIENCES)

POLITICAL SCIENCE

ROBERTS, SULLIVAN, Ph.D., *Chairman*, Professor

JOSEPH H. BINDLEY, Ph.D., Associate Professor

EDWIN H. FEDDER, Ph.D., Associate Professor

EARL J. REEVES, Ph.D., Associate Professor

LYMAN T. SARGENT, Ph.D., Assistant Professor

JAMES SOLEM, M.A.P.A., Assistant Professor

HAMPTON T. DAVEY, M.A., Instructor

JOYCE R. LILIE, M.A., Instructor

STUART A. LILIE, M.A., Instructor

- 11 **Government in Modern Society (3-4)***
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. STAFF.
- 12 **Government in Modern Society (3-4)***
Prerequisite: Political Science 11. Continuation of Political Science 11. Application of basic concepts of government to the study and analysis of the functions of government in modern society, with special emphasis on the United States. Course fulfills the state requirement. STAFF.
- 150 **Comparative Government and Politics (3)**
Prerequisite: Political Science 11. Examination of theoretical approaches to the study of political systems and a study of selected political systems with primary emphasis upon a comparison of the British parliamentary system to other democratic and dictatorial systems. DAVEY.
- 160 **Introduction to Political Thought (3)**
Prerequisite: Political Science 11. Survey of political thought relating to the source and nature of authority, forms of government, control of power, etc. SARGENT.
- 170 **State and Local Government (3)**
Prerequisite: Political Science 11 or consent of instructor. Origin, development, and problems of state and local government in the American federal system, including the role of the United States Constitution as the framework for the federal system. Survey of the organization, functions, and operation of state and local governments in the United States. This course meets both the general state requirement and the state education requirement. REEVES, SOLFM.
- 180 **International Politics (3)**
Prerequisite: Political Science 11. Analysis of politics among nations: imperialism, balance of power, international morality, sovereignty, diplomacy; analysis of the problem of peace, disarmament, international organizations, world government. SULLIVANT, FEDDER.
- 190 **Political Science Readings (3)**
Prerequisites: Political Science 11, consent of instructor and junior Readings on topics mutually acceptable to student and instructor. STAFF.
- 192 **Senior Readings (3)**
Prerequisite: Consent of department. Required for all senior political science majors. Directed readings in an area mutually acceptable to student and instructor. STAFF.
- 193 **Senior Seminar (3)**
Prerequisite: Consent of department. Required for all senior political science majors. Directed reading and research, one product of which shall be a formal paper. STAFF.
- 255 **Asian Comparative Politics (3)**
Study of the systems of Asia including China, Japan, India, and Southeast Asia. Emphasis on the non-western political process. Fulfills non-western requirement. DAVEY.
- 261 **History of Political Thought (3)**
Study of political philosophy from Plato to Machiavelli. SARGENT.
- 262 **History of Political Thought (3)**
Study of political philosophy from Machiavelli to the present. SARGENT.
- 300 **Methodology and Empirical Theory (3)**
Prerequisite: Political Science 11. A consideration of the evolution and present status of political science as a discipline, with emphasis on contemporary research methods and techniques. S. A. LILIE.
- 315 **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. J. R. LILIE.
- 320 **The American Constitution (3)**
Prerequisite: Political Science 11. Study of leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court. REEVES.
- 321 **The Constitution and Civil Rights (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.

*A student may register for a fourth hour of readings with the consent of the department.

- 323 **The Judicial Process (3)**
Prerequisite: Political Science 11. Analysis of the role of the judiciary in policy formation.
- 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; as an element in the party system. J.R. LILIE.
- 335 **Political Parties (3)**
Prerequisite: Political Science 11. Development, organization, functions, activities of major and minor political parties; pressure groups, election administration, especially in the United States. BINDLEY.
- 336 **Interest Groups (3)**
Prerequisite: Political Science 11. Examination of the basis of power and methods of interest groups and of the points of access to and influence on public policy. Attention is given to the problems of defining power and comparing the behavior of groups with their statements of interest.
- 337 **Public Opinion and Propaganda (3)**
Prerequisite: Political Science 11. Analysis of the methodology and techniques of public opinion formation and the role of public opinion in the American political system. Propaganda is examined as a tool of opinion makers. BINDLEY.
- 338 **Political Behavior (3)**
Prerequisite: Political Science 11. Economic, psychological, and social dimensions of political behavior, political participation, leadership and elites; political attitudes; voting behavior and decision making processes. S. A. LILIE.
- 340 **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. BINDLEY, REEVES, SOLEM.
- 343 **Public Policy and the Administrative Process (3)**
Prerequisite: Political Science 11. Analysis of the formulation of public policies through the administrative process. REEVES.
- 353 **Soviet Political System (3)**
Prerequisite: Political Science 11. Examination of government and politics in the Soviet Union dealing with themes such as the role of the Party, selection and socialization of elites, the role of ideology, interest groups, and the formulation of policy, bureaucratization of social, economic, and cultural life. SULLIVANT.
- 360 **American Political Thought (3)**
Prerequisite: Political Science 11. Development of political thought in America from Colonial period to contemporary scene. SARGENT.
- 365 **The Theory of Political Equality (3)**
Prerequisite: Political Science 11. Analysis of the concept of political equality in political thought, including a consideration of the ramifications of this concept for any political theory. SARGENT.
- 369 **The Marxist Heritage (3) (Same as Philosophy 369 and Economics 369.)**
An interdisciplinary study of Marx and leading Marxists, designed to evaluate their influence on recent political, economic, and social thought and institutions. SULLIVANT, DOYLE.
- 376 **Community Politics (3)**
Prerequisite: Political Science 11. Examination of the structure and processes of politics in the urban community, with emphasis on their relationships to community power structures. SOLEM.
- 377 **Municipal Administration (3)**
Prerequisite: Political Science 11. Study of administrative organization and problems at the municipal level. SOLEM.
- 379 **The Socio-Political Nature of Urban Regions (3) (Same as Sociology 379.)**
Prerequisite: Political Science 170 or 376 or Sociology 316. An inter-disciplinary seminar providing the student with an opportunity to develop an understanding of the modern metropolis through the perspectives of sociology and political science. REEVES, KRAMER.
- 382 **United States Foreign Policy (3)**
Prerequisite: Political Science 11. Examination of the factors influencing the formation and the execution of United States foreign policy and of specific contemporary foreign policies and problems. SULLIVANT, FEDDER.

385 International Organization (3)

Prerequisite: Political Science 11. Forms and functions of international organizations, with special reference to the United Nations and problems of international integration. SURVIVANT.

390 Special Readings (credit arranged)

Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. STAFF.

PSYCHOLOGY

ALAN GERALD KRASNOFF, Ph.D., *Chairman*, Professor
FREDERICK J. THUMIN, Ph.D., Associate Professor JOHN
JULIAN BOSWELL, Ph.D., Assistant Professor DONALD
DENNIS USENBY, M.A., Assistant Professor DENNIS CARL
ÜBER, Ph.D., Assistant Professor MILTON E. STRAUSS,
Ph.D., Assistant Professor
JAMES T. WALKER, Ph.D., Assistant Professor
D. J. ZERBOLIO, JR., Ph.D., Assistant Professor

Prerequisites may be waived by consent of the instructor.

1 General Psychology (3)

A survey of the facts, principles, and methods in the study of human behavior. 2

General Psychology (3)

Prerequisite: Psychology 1. Continuation of Psychology 1.

160 Social Psychology (3) (Same as Sociology 160.)

Prerequisite: Psychology 2 or Sociology 2. Study of the interaction between the individual and his social environment. Examination of basic principles, concepts, methods.

192 Senior Readings (3)

Prerequisite: Consent of department. Required for all senior psychology majors. Directed readings in an area mutually acceptable to student and instructor.

193 Senior Seminar (3)

Prerequisite: Consent of department. Required for all senior psychology majors. Directed reading and research, one product of which shall be a formal paper.

201 Psychological Statistics (4) (with laboratory)

Prerequisite: Psychology 2. Statistical methods in psychological measurement, analysis of psychological data, frequency distribution analysis, sampling, tests of significance, correlational methods.

212 Principles of Learning (3)

Prerequisite: Psychology 2. A consideration of critical findings in learning.

215 Psychology of Perception (3)

Prerequisite: Psychology 2. Classical and current problems in psychophysics, sensory physiology, and the developmental and comparative psychology of sensory processes.

270 Child Psychology (3)

Prerequisite: Psychology 2. Principles of biological, behavioral and personality development from conception to puberty.

271 Adolescent Psychology (3)

Prerequisite: Psychology 2. Principles of biological, behavioral, and personality development from puberty to maturity.

290 Psychology Readings (3)

Prerequisites: Psychology 2 and consent of instructor. Readings on a topic mutually acceptable to student and instructor.

301 Advanced Statistics and Experimental Design (3)

Prerequisite: 12 hours of psychology, including Psychology 201. Statistical methods particularly useful in psychological research and the design of experiments appropriate to these methods.

310 Motivation Theory (3)

Prerequisite: 12 hours of psychology. Survey of current theoretical material in the area of motivation.

313 The Psychology of Exceptional Children (3) (Same as Education 313.)

Prerequisites: Education 102, and either Psychology 270 or Psychology 271. A study of the special psychological and educational problems of the child who deviates from the normal.

314 Physiological Psychology (3)

Prerequisites: 12 hours of psychology and Biology 11 and 12. Critical consideration of the biological determinants of behavior with particular emphasis on the nervous and endocrine systems.

315 Personality Theory (3)

Prerequisite: 12 hours of psychology. Structural and dynamic aspects of the human personality considered in the context of selected theoretical systems.

319 General Experimental Psychology (3) (with laboratory)

Prerequisite: Psychology 201. Study of various classical areas in psychology including reaction time, psychophysics, perception, psychomotor skills, and autonomic reactions.

320 General Experimental Psychology (3) (with laboratory)

Prerequisite: Psychology 319. Continuation of Psychology 319.

345 Abnormal Psychology (3)

Prerequisite: 12 hours of psychology. Etiology and description of certain symptom complexes commonly found in the mentally ill, with a consideration of selected therapeutic procedures.

350 Special Readings (credit arranged)

Prerequisite: Consent of instructor. Independent study through readings, reports and conferences.

357 Psychology of Learning (4) (with laboratory)

Prerequisites: Psychology 201 and 320. Lecture and laboratory in area of human learning (verbal and motor skills). Primary emphasis on methodology.

358 Comparative Psychology (4) (with laboratory)

Prerequisites: Psychology 201 and 320. Methods and techniques in the investigation of learning processes in infra-human organisms.

361 History and Systems of Psychology (3)

Prerequisite: 12 hours of psychology. Historical antecedents of contemporary scientific psychology, including a survey of systems and schools of psychology.

365 Psychological Tests and Measurements (3)

Prerequisites: Psychology 2 and 201. Survey of psychological testing, including intelligence, aptitudes, interests, and personality. Critical consideration of criteria of adequate tests and measurements.

RUSSIAN (See MODERN FOREIGN LANGUAGES)

SCIENCES

CHARLES W. ARMBRUSTER, Ph.D., *Chairman*, Associate Professor of Chemistry

LAWRENCE D. FRIEDMAN, Ph.D., Associate Professor of Biology

JAMES C. GRAVITT, Ph.D., Associate Professor of Physics

DAVID W. LARSEN, Ph.D., Associate Professor of Chemistry •

THOMAS L. WESTMAN, Ph.D., Associate Professor of Chemistry

R. GEORGE BABCOCK, Ph.D., Assistant Professor of Biology

RICHARD A. BARR, Ph.D., Assistant Professor of Biology

LAWRENCE BARTON, Ph.D., Assistant Professor of Chemistry

ALAN F. BERNDT, Ph.D., Assistant Professor of Chemistry

JOSEPH FEDER, Ph.D., Assistant Professor of Chemistry

DAVID L. GARIN, Ph.D., Assistant Professor of Chemistry

WARREN GROVES, Ph.D., Assistant Professor of Chemistry

JAMES F. HEISINGER, Ph.D., Assistant Professor of Biology

BOB L. HENSON, Ph.D., Assistant Professor of Physics

ROBERT HIGHT, Ph.D., Assistant Professor of Physics

MARCELL. HALBERSTADT, Ph.D. • Assistant Professor of Chemistry

RONALD D. MACLEOD, Ph.D., Assistant Professor of Biology

JANE A. MILLER, Ph.D., Assistant Professor of Chemistry ROBERT L.
 STEARNS, Ph.D., Assistant Professor of Chemistry STUART W.
 WEIDMAN, Ph.D., Assistant Professor of Chemistry
 RICHARD F. TOMBAUGH, M.S., Visiting Assistant Professor of Biology
 MUREL B. BABCOCK, M.S., Instructor in Biology
 CHARLES MARTIN, Instructor in Astronomy
 JONATHAN MISHORY, M.S., Instructor in Physics
 SAID I. RAZIQ, M.S., Instructor in Chemistry
 ROBERT K. ROSE, M.S., Instructor in Biology
 NORBERT ROUGHTON, Instructor in Astronomy.

Laboratory Instructors: Robert D. Ayres, Jon Benedictus, Gary R. Bernstein, Edward Bovier, Frank Buchmeier, Elaria E. Cate, Thomas Cooper, Thomas Dueber, Robert Fluchel, Melvin Franke, Dennis R. Hathaway, **Gary** Henrich, David E. Henton, Lloyd P. Hill, Charles Horwitz, Carolyn Hunsinger, James Hutton, Thomas Jenkins, Dimple E. Jud, Donald Kaesser, Harland Kalman, Richard Kerry, Barbara Marchand, James Merrins, Harold Messier, Kenneth Molly, Wiley L. Moore, Deral T. Mosbey, Barbara Mossinghoff, Neal Neuman, Raymond Novak, Dennis Patter son, John D. Phelps, Carol Reinhardt, Robert L. Seymour, Patricia Skewes, Edward J. Streit, Lee Terveer, **D.** Roger Vespa.

Laboratory Stores **Manager:** Jack L. Coombs, B.A.

Prerequisites in any science may be waived by the consent of the department.

Astronomy

The following courses will meet at McDonnell Planetarium. Astronomy 1 and 2, **together** with Biology 1, **will** satisfy the General Education Requirement in Science. Astronomy 1, **together** with Biology 1 and 3, will also satisfy the General Education Requirement in Science. Astronomy 11 and 12 **will** satisfy **the** entire General Education Requirement in Science.

1 General Astronomy (3)

Prerequisites: Three years of **high** school mathematics and one year of high school **physics** or chemistry. The first half of a terminal course for non-science majors, with emphasis on **the** historical and cultural aspects of astronomy. Three class hours per week, plus observing periods to be arranged.

2 General Astronomy (3)

Prerequisite: Astronomy 1. Continuation of Astronomy 1.

11 Introduction to Astronomy (3)

Prerequisites: Mathematics 175, **and** Physics 12 or Chemistry 12. Introduction to modern concepts of the **physical** nature of the astronomical universe. Topics include instruments, stars, sun, nebulae, star dusts, galaxies, and various objects that make up the solar system, and their motion. **Designed** to allow a student to continue the study of astronomy. 3 hours plus **observing** periods to be arranged.

12 Introduction to Astronomy (3)

Prerequisite: Astronomy 11. Continuation of Astronomy 11.

Biology

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. Students who plan to pursue a career in medicine or one of the medically oriented professions should enroll in Biology 11/12 rather than Biology 1. 3 hours lecture per week. STAFF.

3 General Biology Laboratory (2)

Prerequisite: Biology 1 (may be taken concurrently). Laboratory course to accompany Biology 1. Biology 3 can be used to fulfill the General Education Requirement in a laboratory science. Biology 3 does not meet the prerequisite requirements of other courses in biology. 3½ hours laboratory per week. ROSE.

11 Introductory Biology I (5)

Prerequisite: Chemistry 11 (may be taken concurrently). Biology 11/12 provides a two-semester sequence giving intensive introduction to the general properties of living systems, both plant and animal. Three hours lecture and 3½ hours laboratory per week. M. B. BABCOCK, BARR.

12 Introductory Biology II (5)

Prerequisite: Biology 11. Continuation of Biology 11. 3 hours lecture and 3½ hours laboratory per week. M. B. BABCOCK, BARR.

180 Methods of Teaching Biology in Secondary Schools (3)

Prerequisites: Education 163 and a near-major in the subject matter. A study of the scope and sequence of the science 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 science. ROSE.

202 Comparative Anatomy (2)

Prerequisite: Biology 12. A study of the microscopic and macroscopic structures of the different phyla of the animal kingdom. Special reference is given to the evolution of form and function. 2 hours lecture per week. HEISINGER.

204 Comparative Anatomy Laboratory (3)

(Must be taken concurrently with Biology 202.) Anatomical study of the animal kingdom. 7 hours laboratory per week. HEISINGER.

213 General Physiology (3)

Prerequisites: Chemistry 261 (may be taken concurrently), and Biology 12. The basic functional aspects of organ systems in relation to the physicochemical properties of protoplasm. 3 hours lecture per week. HEISINGER.

215 General Physiology Laboratory (3)

(Must be taken concurrently with Biology 213.) Instrumental and experimental studies in physiology. 3½ hours laboratory per week. HEISINGER.

224 Genetics (3)

Prerequisite: Biology 12. The fundamental principles of inheritance, including classical genetic theory as well as recent advances in the molecular basis of heredity. 3 hours lecture per week. FRIEDMAN.

226 Genetics Laboratory (2)

Prerequisite: Biology 224 (may be taken concurrently). Laboratory to accompany Biology 224. 3½ hours laboratory per week. FRIEDMAN.

235 Animal Development (3)

Prerequisites: Biology 213 and 224. Anatomical and physiological aspects of the embryonic development of animals. 3 hours lecture per week. R. G. BABCOCK.

237 Animal Development Laboratory (2)

(Must be taken concurrently with Biology 235.) Laboratory to accompany Biology 235. 3½ hours laboratory per week. R. G. BABCOCK.

246 Evolution (3)

Prerequisite: Biology 235 or 255. The course and mechanisms of organic evolution. 3 hours lecture per week.

250 Plant Structure (3)

Prerequisite: Biology 12. Morphological and anatomical studies of the members of the plant kingdom. 3 hours lecture per week.

252 Plant Structure Laboratory (2)

(Must be taken with Biology 250.) Laboratory to accompany Biology 250. 3½ hours laboratory per week.

255 Plant Development (2)

Prerequisites: Biology 213 and 250. Anatomical and physiological aspects of the growth and development of plants. 2 hours lecture per week. BARR.

257 Plant Development Laboratory (3)

(Must be taken concurrently with Biology 255.) Laboratory to accompany Biology 255. 7 hours laboratory per week. BARR.

260 Microtechnique(2)

Prerequisite: Biology 213. Technical aspects of preparation of biological material for proper microscope study. 2 hours lecture per week.

262 Microtechnique Laboratory (3)

(Must be taken concurrently with Biology 260.) The preparation of specimens for microscope study. Includes wholemount techniques, sectioning, routine staining methods, and histochemical procedures. 7 hours laboratory per week.

289 Seminar (1)

Required of all biology majors during both semesters of their senior year. Presentation of selected papers by students. STAFF.

290 Research (credit arranged)

STAFF.

310 Cellular Biology (3)

Prerequisites: Biology 213, 215 and 224. Cellular metabolism and structure. 3 hours lecture per week.

312 Cellular Biology Laboratory (2)

Prerequisite: Biology 310 (may be taken concurrently). Instrumentation and experimental techniques in cellular biology. 3½ hours laboratory per week.

313 Comparative Animal Physiology (3)

Prerequisites: Biology 213 and 215. The evolutionary relationships of animals considered in terms of physiological and biochemical characteristics. 3 hours lecture per week. HEISINGER.

315 Comparative Animal Physiology Laboratory (2)

Prerequisite: Biology 313 (may be taken concurrently). Analysis of physiological processes and their adaptive significance in specific environments. 3½ hours laboratory per week. HEISINGER.

316 Microbiology (3)

Prerequisites: Biology 213 and 224. A study of microorganisms, their metabolism and their interaction with other forms of life. 3 hours lecture per week.

318 Microbiology Laboratory (2)

Prerequisite: Biology 316 (may be taken concurrently). Experimental studies and procedures of microbiological techniques. 3½ hours laboratory per week.

321 Advanced Genetics (3)

Prerequisite: Biology 224. Selected topics in genetic theory. 3 hours lecture per week. FRIEDMAN.

323 Advanced Genetics Laboratory (2)

Prerequisite: Biology 321 (may be taken concurrently). Instrumentation and experimental studies in genetic analysis. 3½ hours laboratory per week. FRIEDMAN.

330 Analysis of Vertebrate Development (3)

Prerequisites: Biology 235 and 237. An experimental approach to the factors governing growth, development, and reproduction of vertebrates. 3 hours lecture per week. R. G. BABCOCK.

332 Analysis of Vertebrate Development Laboratory (2)

Prerequisite: Biology 330 (may be taken concurrently). Instrumentation and experimental studies in vertebrate development. 3½ hours laboratory per week. R. G. BABCOCK.

334 Analysis of Invertebrate Development (3)

Prerequisites: Biology 235 and 237. An experimental approach to the study of the factors governing growth, development, and reproduction of invertebrates. 3 hours lecture per week. M. B. BABCOCK.

336 Analysis of Invertebrate Development Laboratory (2)

Prerequisite: Biology 334 (may be taken concurrently). Instrumentation and experimental studies in invertebrate development. 3½ hours laboratory per week. M. B. BABCOCK.

350 Analysis of Plant Development (2)

Prerequisites: Biology 255 and 257. An experimental approach to the study of the factors governing growth, development, and reproduction in plants. 2 hours lecture per week. BARR.

352 Analysis of Plant Development Laboratory (3)

Prerequisite: Biology 350 (may be taken concurrently). Instrumentation and experimental studies in plant development. BARR.

Chemistry

1 General Chemistry (3)

Presents a survey of inorganic, analytical, physical, and organic chemistry for students not majoring in science. 3 hours lecture per week. BARTON, GROVES.

3 General Chemistry Laboratory (2)

Prerequisite: Must be accompanied or preceded by Chemistry 1. Experiments designed to illustrate topics treated in Chemistry 1. 3½ hours laboratory per week. MILLER.

11 Introductory Chemistry (5)

Prerequisite: Mathematics 10 (may be taken concurrently). Presents an introduction to chemical principles. Required for all students majoring in science. 3 hours lecture and 1 hour discussion per week, 3½ hours laboratory biweekly. GARIN, STEARNS, MILLER.

12 Qualitative Analysis (5)

Prerequisite: Chemistry 11, or advanced placement. A study of the chemistry of electrolytic solutions and the principles of chemical equilibrium. Laboratory work deals with the descriptive chemistry and identification of common ionic species. 3 hours lecture and 3½ hours laboratory per week. HALBERSTADT, STEARNS, MILLER.

180 Methods of Teaching Chemistry in Secondary Schools (3)

Prerequisites: 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. MILLER.

222 Quantitative Analysis (5)

Prerequisite: Chemistry 12. Principles and practice of gravimetric, volumetric, and instrumental quantitative analytical methods. 2 hours lecture and 7 hours laboratory per week. BERNDT.

231 Physical Chemistry I (3)

Prerequisites: Chemistry 261 and Physics 12. Principles of physical chemistry including thermodynamics, theory of gases, phase equilibria, kinetics, crystal structure, spectroscopy, and quantum mechanics. 3 hours lecture per week. LARSEN.

232 Physical Chemistry II (3)

Prerequisite: Chemistry 231. Continuation of Chemistry 231. 3 hours lecture per week. LARSEN.

233 Laboratory in Physical Chemistry I (2)

Prerequisite: Must be preceded or accompanied by Chemistry 231. 1 hour lecture and 7 hours laboratory per week. HALBERSTADT.

234 Laboratory in Physical Chemistry II (2)

Prerequisites: Chemistry 233, and must be preceded or accompanied by Chemistry 232. 1 hour lecture and 7 hours laboratory per week. HALBERSTADT.

261 Structural Organic Chemistry (3)

Prerequisite: Chemistry 12. Systematic presentation of structural concepts in aliphatic and aromatic systems. 3 hours lecture per week. ARMBRUSTER, WISTMAN.

262 Organic Reactions (3)

Prerequisite: Chemistry 261. A systematic study of organic reactions and reaction mechanisms; synthetic organic methods. 3 hours lecture per week. ARMBRUSTER, WISTMAN.

263 Techniques of Organic Chemistry (2)

Prerequisite: Must be preceded or accompanied by Chemistry 261. 1 hour lecture and 7 hours laboratory per week. WEIDMAN, RAZIQ.

264 Synthetic and Analytical Methods of Organic Chemistry (2)

Prerequisites: Chemistry 263, and must be preceded or accompanied by Chemistry 262. 1 hour lecture and 7 hours laboratory per week. WEIDMAN, RAZIQ.

272 Biochemistry (3)

Prerequisite: Chemistry 263. The isolation, chemical characterization, and function of the structural and catalytic components of living cells and subcellular particles. 3 hours lecture per week. FEDER.

274 Biochemical Techniques (2)

Prerequisite: Chemistry 272 (may be taken concurrently). Study of biochemical processes in cellular and subcellular systems with emphasis on the isolation and purification of protein (enzymes) and the characterization of catalytic properties. 1 hour lecture and 3½ hours laboratory per week. FEDER.

289 Seminar (1)

All chemistry majors must enroll as hearers in Chemistry 289 during both semesters of their junior year; all chemistry majors must take Chemistry 289 for credit during both semesters of their senior year. Presentation of selected papers by students, faculty members, and invited speakers at weekly departmental meetings.

290 Research (credit arranged)

Prerequisite: Consent of instructor. STAFF.

324 Instrumental Analysis (3)

Prerequisite: Chemistry 222, 234. Modern instrumental methods, including nuclear magnetic resonance, polarimetry, refractometry, spectrophotometry, X-ray diffraction, and others. 2 hours lecture and 3½ hours laboratory per week. BIRNDT, STAFF.

325 Qualitative Organic Analysis (3)

Prerequisite: Chemistry 264. Laboratory and instrumental methods for the systematic identification of organic compounds. 1 hour lecture and 7 hours laboratory per week.

333 Thermodynamics (3)

Prerequisite: Chemistry 232. Derivation and development of the fundamental relationships of thermodynamics and their application. 3 hours lecture per week.

341 Advanced Inorganic Chemistry (3)

Prerequisite: Chemistry 232 (may be taken concurrently). A systematic study of the behavior and reactions of the elements; emphasis on correlation of chemical properties with theoretical concepts. 3 hours lecture per week. BARTON.

352 Nuclear Chemistry (3)

Prerequisite: Chemistry 232. Properties of radioactive nuclei, nature of radioactivity, nuclear reactions, and applications of nucleonics to chemistry. 3 hours lecture per week.

361 Advanced Organic Chemistry (3)

Prerequisite: Chemistry 262. Presents advanced material in organic reactions, natural products, and synthetic methods. 3 hours lecture per week. GARIN.

363 Advanced Organic Synthesis (2)

Prerequisite: Chemistry 264. 1 hour lecture and 7 hours laboratory per week. ARMSTRUSTER, GARIN.

366 Physical Organic Chemistry (3)

Prerequisites: Chemistry 262 and 232 (Chemistry 232 may be taken concurrently). Theory of organic chemistry, conformational analysis, reaction mechanisms, tautomerism, and other advanced topics. 3 hours lecture per week. WEIDMAN.

371 Advanced Biochemistry (3)

Prerequisites: Chemistry 272. Selected advanced topics in the chemistry of life processes. 3 hours lecture per week. FEDER.

381 Special Topics (3)

Prerequisite: Consent of instructor. A reading and seminar course in selected advanced topics. 3 hours lecture per week.

Physics

1 General Physics (3)

Prerequisite: Mathematics 03 or equivalent. 3 hours lecture per week. STAFF.

2 General Physics (3)

Prerequisite: Physics 1. Continuation of Physics 1. 3 hours lecture per week. STAFF.

3 General Physics Laboratory (2)

Laboratory course to accompany Physics 1. 3½ hours laboratory per week. STAFF.

11 Introductory Physics I (5)

Prerequisite: Mathematics 175 (may be taken concurrently). A quantitative study of elementary mechanics, including an introduction to the special theory of relativity; the basic principles of thermodynamics. 3 hours lecture, 1 hour discussion, and 3½ hours laboratory per week. STAFF.

12 Introductory Physics II (5)

Prerequisites: Physics 11 and Mathematics 201 (Mathematics 201 may be taken concurrently). A continuation of Physics 11, with emphasis on electricity and magnetism. 3 hours lecture, 1 hour discussion, and 3½ hours laboratory per week. STAFF.

180 Methods of Teaching Physics in Secondary Schools (3)

Prerequisites: 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. Attention is also directed toward learning the techniques and research tools of the scholar in the field of science.

200 Survey of Theoretical Physics (3)

Prerequisites: Physics 12, or Physics 2 and Mathematics 201. A survey of the main areas of theoretical physics using relatively elementary mathematical techniques, including classical mechanics; electricity and magnetism; quantum mechanics; relativity; and statistical mechanics. 3 hours lecture per week.

211 Intermediate Physics Laboratory I (1)

Prerequisites: Physics 12 and Mathematics 301 (Mathematics 301 may be taken concurrently). Experiments covering topics in classical and quantum physics with emphasis on experimental accuracy and modern laboratory techniques. Time to be arranged. HrGHT.

212 Intermediate Physics Laboratory II (1)

Prerequisite: Physics 211. Continuation of Physics 211. Time to be arranged. HIGHT.

221 Mechanics (3)

Prerequisites: Physics 12 and Mathematics 301 (Physics 12 and Mathematics 301 may be taken concurrently). Advanced course covering rigid-body dynamics, damped and undamped oscillatory motion, perturbation methods, Lagrange's equations and variational principles, Hamilton's equations. 3 hours lecture per week. GRAVITT.

223 Electricity and Magnetism (3)

Prerequisite: Physics 12. Maxwell's equations: special techniques in electrostatics and magnetostatics; direct alternating and transient currents; electromagnetic plane waves in space. 3 hours lecture per week. HrGHT, GRAVITT.

225 Physical Optics (3)

Prerequisite: Physics 223. A basic study of light: interference, diffraction, crystal optics, reflection, scattering and light quanta. 3 hours lecture per week.

231 Quantum Physics (3)

Prerequisite: Physics 221. A qualitative and quantitative study of the experimental and theoretical aspects of non-relativistic quantum mechanics using the Schrodinger formulation. 3 hours lecture per week. HENSON.

241 Thermal and Statistical Physics (3)

Prerequisite: Physics 12. Laws of thermodynamics, kinetic theory, introduction to statistical mechanics. 3 hours lecture per week. HENSON.

289 Seminar (1)

All physics majors must enroll as hearers in Physics 289 during both semesters of their junior year; all physics majors must take Physics 289 for credit during both semesters of their senior year. Presentation of selected papers by students and faculty members at weekly departmental meetings.

290 Research (credit arranged)**301 Introduction to Mathematical Physics (3)**

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. 3 hours lecture. GRAVITT, HIGHT.

311 Advanced Physics Laboratory I (1-3 hours, credit arranged)

Prerequisites: Physics 211 and 212, plus 16 hours of physics. Physics majors are introduced to the experimental techniques used in research; use of the literature and professional report writing are included. A student may be given a special problem or assigned to an existing research project. Time to be arranged.

312 Advanced Physics Laboratory II (1-3 hours, credit arranged)

Prerequisite: Physics 311. Continuation of Physics 311. Time to be arranged.

321 Dynamics (3)

Prerequisites: Physics 221 and 301 (Physics 301 may be taken concurrently). Theory of small oscillations, canonical transformations; Hamilton-Jacobi theory; Poisson Brackets; Lagrangian formulations of continuous systems. 3 hours lecture per week.

323 Electromagnetic Theory (3)

Prerequisites: Physics 223 and 301 (Physics 301 may be taken concurrently). Reflection and refraction at dielectric and conducting surfaces; spherical, cylindrical, and guided waves; relativistic four-dimensional formulation of electromagnetic theory. 3 hours lecture per week.

331 Introduction to Quantum Mechanics (3)

Prerequisite: Physics 221. Elementary treatment of quantized mechanical systems, methods of Schrodinger's wave mechanics, operator techniques, and perturbation theory. 3 hours lecture per week. HENSON.

335 Atomic and Nuclear Physics (3)

Prerequisite: Physics 231. Continuation of Physics 231. Applications 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, 3 hours lecture per week.

341 Statistical Thermodynamics (3)

Prerequisite: Physics 241. An introduction to ensemble theory applied to systems in equilibrium. Applications include Fermi-Dirac and Einstein-Bose statistics; specific heats of solids. 3 hours lecture per week.

351 Elementary Solid State Physics (3)

Prerequisites: Physics 231 and 241. 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. 3 hours lecture per week.

SOCIOLOGY-ANTHROPOLOGY

JOHN E. KRAMER, JR., Ph.D., *Chairman*, Assistant Professor

HARRY H. BASH, M.A., Assistant Professor

EDWARD C. LEHMAN, Ph.D., Assistant Professor

JOHN J. LENNON, Ph.D., Assistant Professor

Prerequisite may be waived by consent of the department.

1 Introduction to Sociology (3-4)*

Study of human behavior as related to the human group. Principal sociological concepts and theories. STAFF.

2 Introduction to Sociology (3-4)*

Prerequisite: Sociology 1. Continuation of Sociology 1. Application of basic sociological principles to the problems of contemporary society. STAFF.

10 Introduction to Anthropology (3)

Principles of physical anthropology. Fossil man, racial types, the origin and growth of civilization. Required of sociology-anthropology majors. EDWARDS.

11 Introduction to Anthropology (3)

Continuation of Anthropology 10. Principles of social and cultural anthropology. EDWARDS.

100 Sociological Aspects of Social Work (3)

Prerequisite: Sociology 1. An introduction to social work for students of sociology. Stress is placed upon uses of sociological theory, methods, and research findings in various types of social service programs. LENNON.

101 Sociological Theory (3)

Prerequisite: Sociology 2. The nature of sociological theory. A survey of theory from Comte through the Parsonian school. Required of sociology majors in sophomore or junior year. BASH.

102 Research Methods (3)

Prerequisite: Sociology 2. Research planning; the collection, analysis, and presentation of data. Course includes practical experience in the conduct of a research project. Required of sociology majors in sophomore or junior year. GILMAN.

150 Social Disorganization (3)

May not be taken by students who have taken Sociology 2. Carries no credit toward a sociology major. A survey of contemporary social problems. STAFF.

153 Peoples and Cultures of the World (3)

Prerequisites: Anthropology 10 and 11. Examination of a variety of societies and their cultures, with emphasis upon those which are preliterate. EDWARDS.

160 Social Psychology (3) (Same as Psychology 160.)

Prerequisite: Psychology 2 or Sociology 2. Study of the interaction between the individual and his social environment. Examination of basic principles, concepts methods. LEHMAN.

*A student may register for a fourth hour of readings with the consent of the department.

- 190 Junior Readings in Sociology (3)
Prerequisites: Sociology 2, 101, and 102. A general survey of theory, methods, current research and perspectives in sociology. Required of sociology majors in junior year. STAFF.
- 192 **Senior Readings (3)**
Prerequisite: Consent of instructor. Readings and discussions covering specific areas of student interest. Course includes the planning phase for senior thesis. Required of sociology-anthropology majors in senior year. STAFF.
- 193 **Senior Seminar (Thesis Research)(3)**
Prerequisite: Sociology 192. Completion of a major report dealing with a subject chosen through student-staff consultation. Periodic conferences with designated faculty. Required of sociology anthropology majors in senior year. STAFF.
- 310 Social Stratification (3)
Prerequisite: Sociology 1. Theories of social stratification and an examination of current research. Changes in the occupational and hierarchical structure of contemporary society. BASH.
- 311 **Criminology (3)**
Prerequisite: Sociology 1. Crime as a social phenomenon. The treatment of offenders. Theories of deviance and anti-social behavior. LENNON.
- 314 Sociology and the Family (3)
Prerequisite: Sociology 1. Universal and variable aspects of family organization. Family role systems. Changes in family social structure. LENNON.
- 316 Urban Sociology (3)
Prerequisite: Sociology 1. Urbanism as a world phenomenon; ecological, demographic, and structural characteristics of cities. The sociological aspects of urban problems. KRAMER.
- 320 Medical Sociology (3)
Prerequisite: Sociology 1. The application of sociology in the field of health and human behavior. Patterns of medical care. Sociological aspects of mental illness. KRAMER.
- 327 Race and Ethnic Relations (3)
Prerequisite: Sociology 1. Cultural and social-psychological aspects of race and ethnic categories. Historical and contemporary perspectives. BASH.
- 328 **Personality and Culture(3)**
Prerequisite: Sociology 160. Analysis of behavior from the standpoint of interaction between psychological systems, sociological systems, and cultural systems. LEHMAN.
- 329 **Industrial Sociology (3)**
Prerequisite: Sociology 1. The work setting as a social system. Types of occupations and their sociological relevance. KRAMER.
- 330 **Organizational Analysis (3)**
Prerequisite: Sociology 1. The structural characteristics of formal and informal organizations. Rational and natural-system models. Pressures toward equilibrium and change. LENNON.
- 331 The Sociology of Art and Literature (3)
Prerequisite: Sociology 1. The creative individual, his work, and his public. Social pressures and rewards. BASH.
- 332 The Sociology of Religion (3)
Prerequisite: Sociology 1. Religion as a universal phenomenon. The effect of religion upon the individual and society. The organization of religious enterprises. LEHMAN.
- 340 Social Change (3)
Prerequisite: Sociology 1. The relationship between structural change and alterations in culture. The individual, the group, and the collectivity as agents of change. KRAMER.
- 350 Special Readings (credit arranged)
Prerequisite: Consent of instructor. Independent study through readings, reports, and conferences. STAFF.
- 379 The Socio-Political Nature of Urban Regions (3) (Same as Political Science 379.)
Prerequisite: Sociology 316 or Political Science 170 or 376. An interdisciplinary seminar providing the student with an opportunity to develop an understanding of the modern metropolis through the perspectives of sociology and political science. KRAMER, REEVES.

SPANISH (See MODERN FOREIGN LANGUAGES)