

## THE UNIVERSITY OF MISSOURI BULLETIN

## Announcement of the College of Arts and Science <br> I949-I950



This Bulletin describes
the educational programs of the College of Arts and Science.

For additional information address
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## UNIVERSITY CALENDAR 1948-49

(For all divisions, except the School of Mines and Metallurgy)
1948
First Semester
September 14-Tuesday, Convocation for Freshmen 8:30 a.m. (Attendance required.)
September 14-16-Tuesday-Thursday, Orientation and Freshman Registration Period.
September 17-18-Friday-Saturday, Registration for Sophomores, upperclassmen and graduate students $8-12$ a.m., 1-5 p.m.
September 20-Monday, Classwork begins, 7:30 a.m.
November 25-Thursday, Thanksgiving Day, holiday.
December 22-Wednesday, Christmas vacation begins, 12:30 noon.
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January 3-Monday, Classwork resumed, 7:30 a.m.
January 24 -Monday, Examinations begin, 7:30 a.m.
January 28—Friday, First Semester closes, 5:30 p.m.

January 31-Monday, Orientation Day for entering Freshmen, 8:30 a.m. (Attendance required.)
February 1-Tuesday, Registration.
February 2-Wednesday, Classwork begins, 7:30 a.m.
April 14-Thursday, Spring recess begins, 12:30 noon.
April 18-Monday, Classwork resumed, 12:30 noon.
May 30-Monday, Examinations begin, 7:30 a.m.
June 3-Friday, Second Semester closes, 5:30 p.m.
June 5-Sunday, Baccalaureate address, 11:00 a.m.
June 7-Tuesday, Commencement, 10 a.m.

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## Summer Session

June 8-Wednesday, Orientation and Registration for entering Freshmen.
June 9-Thursday, Registration for Freshmen previously enrolled, sophomores, upperclassmen, and graduate students.
June 10-Friday, Classwork begins.
July 4-Monday, Independence Day, holiday.
August 3-Wednesday, Eight weeks' summer session closes, 4:30 p.m. Summer Commencement, 8:00 p.m.
August 31-Wednesday, summer session in law closes $4: 30$ p.m.

## College of Arts and Science

The College of Arts and Science has these clearly defined purposes:
(1) It offers to students such a liberal education in the arts and sciences as will provide an intelligent familiarity with modern civilization, prepare for wide service in the world, and enlarge and enrich the individual's life. Through the study of the natural sciences, the social sciences, and the humanities, it aims at depth of thought, breadth of view, and personal integrity and worth.
(2) It prepares for graduate study in the various fields of research represented by the departments in the College. Students who wish ultimately to become trained investigators or to teach their specialties in colleges and universities should secure the A.B. degree as a preparation for such advanced study.
(3) It teaches the basic subjects required for admission to the professional schools of Law, Medicine, Journalism, and Business and Public Administration.
(4) It furnishes information to the public on matters of scientific, literary, and social interest.
(5) Through its programs leading to B.S. and B.M. degrees, it provides more highly specialized training in certain areas.

Elective System: Work in the College of Arts and Science is largely elective under the guidance of faculty advisers. The student with the advice of a specially designated member of the faculty makes such choices and combinations of studies as suit his individual needs and purposes, subject to the requirements for graduation.

Degrees: Candidates for the A.B. (Bachelor of Arts) and B.S. (Bachelor of Science) degrees generally spend their first two years in broadening their field of knowledge and experience and their last two years in increasing the depth of understanding in some selected area of concentration.

Many students enter the College of Arts and Science to become candidates later for degrees in Medicine, Law, Journalism, or Business and Public Administration. These divisions require two or three years of successful work in the Arts College before students are admitted to professional training. Many students, especially those planning to go into Law or Medicine, find it desirable to stay four years rather than three, and take an A.B. degree before going into the professional schools. Others take advantage of plans which combine the last year of work in the Arts College with the first year of work in law or medicine to earn two degrees in six years.

## REQUIREMENTS FOR GRADUATION

Bachelor of Arts: In order to receive the degree of Bachelor of Arts the candidate must meet the following requirements:

1. He must have been regularly admitted to the College.
2. He must have earned one hundred twenty-four semester hours of credit and one hundred twenty-four points, exclusive of the required courses in physical education. Each hour of credit earned in the University of Missouri is valued in points as follows: E, three points; S, two points; M, one point. "Passed" grades are treated as of $M$ quality. No points are given for I and F grades.

In order to be classified as a junior or upperclassman the student must have earned sixty hours of credit and sixty points toward graduation. During the underclass (freshman-sophomore) years, a course in which a grade of I is received will carry no credit toward graduation unless, during the same period, sufficient additional points are earned in courses in which the grades are higher than $M$ to balance the points lost with the I grade. Points will be allowed for credits earned in other institutions commensurate with the quality of work done except that in no case may the number of points awarded exceed the number of hours.

At least thirty hours must be taken in courses numbered 100 or above of which at least twenty, with a grade of $M$ or better, shall be in the area of concentration. No more than forty hours may be presented for the degree from any one department, with the following exceptions: English 1 and 2 (Freshman English) need not be counted in applying the forty-hour rule to the English Department; and the Department of Geology and Geography may present fifty hours, provided that no more than forty hours are taken in either Geology or in Geography.
3. Basic Skills. Course requirements in the following basic skills will be determined for each student either on the basis of his level of attainment in proficiency tests given at the beginning of the freshman year or by the number of high school units in particular fields which he presents for admission:
a. English Composition and Rhetoric: Students deficient in an English Placement Test will be required to pass a course in composition and rhetoric meeting five times a week for three hours credit during each of the first two semesters. Students demonstrating average skill in such a test will be required to pass six hours of composition and rhetoric (courses meeting three times a week for the first two semesters). Students demonstrating superior ability in such a test will be required to pass a three-hour course in composition and rhetoric (course meeting three times a week for one semester.)
b. Speech: Students deficient in a Speech test will be required to pass, during either one of the first two semesters, a two-hour course in Speech. There will be no requirement in Speech for other students.
c. Foreign Language: Each student will be required to attain the degree of proficiency indicated by the passing of the second course in one foreign language. This requirement can be met by passing a test directed at either reading or speaking ability at a level which can be expected of the average undergraduate upon the completion of the second five-hour course. If he can pass an achievement test at the level which can be expected of the average undergraduate at the completion of the first fivehour college course, or if he presents two high school units in one language, he may complete his requirement by passing the second five-hour course in the same language. A student who presents one high-school unit in a foreign language may receive three hours credit for the first five-hour course in the same language. A student who presents two high school units in one foreign language may not receive college credit for the first five-hour course in the same language.
d. Mathematics: Students who are deficient in a Mathematics Placement Test will be required to pass during either one of the first two semesters a course in mathematics meeting three times a week for no hours credit (Mathematics 1) or a course meeting five times a week for three hours credit (Mathematics 3).
e. Logic: Students who are deficient in a Logical Reasoning Test will be required to pass during one of the first three semesters the three hour course in logic (Philosophy 1-Remedial Logic).
4. General Education. The following requirements must be completed, preferably during the first two years:
a. Ten hours of an introductory course in the humanities; or ten hours distributed among the fine arts, literature, and philosophy, with no more than six hours in any one of these fields. The following courses can be used to satisfy this requirement: Art 3, 11, 12, 14, 20, 151; Classical Languages and Archaeology 36, 60, 112, 113; English 5, 6, 30, 40, 321, 322 ; Music 1, 21; Philosophy 5, 29, 50; Speech 6, 10.

French 103, German 103, Spanish 103, and the equivalent courses in other languages, may be used in satisfying this requirement.
b. Ten hours of an introductory course in the social studies or ten hours distributed among economics, geography, history, political science, and sociology, with no more than one course in any one department. The following courses can be used to satisfy this requirement: Citizenship 1 and 2; Economics 51; Geography 6; History 1, 2, 11, 20; Political Science 1, 5; and Sociology 1, 60.
c. Ten hours in the natural sciences including mathematics, distributed among the biological sciences, mathematics, and the physical sciences with not more than five hours in any one field and including at least one laboratory course. The following courses can be used to satisfy this requirement: Astronomy 1; Botany 1; Chemistry 1; Geology 1; Mathematics 3, 7, 9, 10, 11, 216; Physics 1 or 23; Psychology 2; Zoology 1. All of these courses are laboratory courses except Astronomy 1 and the courses in Mathematics.
5. Courses Required of All University Students. All students in their freshman and sophomore years are required to take a course in Physical Education meeting two times a week. In addition, men students, in their freshman and sophomore years, are required to take a course in Military Science, which gives one hour of credit a semester toward graduation. The course in Physical Education and the course in Military Science may be taken in addition to the maximum of sixteen hours per semester.

Beginning with the academic year 1948-49, each undergraduate student at the University of Missouri will be required to present for graduation a course or cóurses dealing with American history, institutions, and national and state constitutions. This requirement can be satisfied by credit in History 20, American History (5) and Political Science 1, American Gov-

The dome of Jesse Hall is a landmark which can be seen for miles around.

ernment (5). Where the curriculum permits, these two courses should be taken. They will also satisfy the General Education requirement in the social studies.
6. Area of Concentration. Not later than the beginning of the junior year the student shall declare his intent to concentrate in one of the following areas: humanistic studies, social studies, and the natural sciences including mathematics. Certain other fields of interest which cut across these lines, such as American Civilization and Latin American Affairs and some vocational programs, are also available as Areas of Concentration. Except insofar as, in the judgment of his area adviser, additional elementary studies or elective studies outside his field definitely contribute to his intellectual development, the student in his upperclass years will be expected to devote his time to the completion of a coherent and progressive sequence of courses, to be known as his area of concentration. In his area of concentration, the student must obtain at least forty-five hours credit of which not less than eighteen nor more than forty must be in the department of his principal interest. A student may count at the option of his area adviser not more than five hours of the general education requirements on his area program. A student whose major interest is in any of the foreign languages may count, at the option of his area adviser, not more than five hours of the basic skills requirements on his area program. Students should apply to the chairman of the department of their major interest for assignment to an area adviser.

## COMBINED COURSES FOR THE BACHELOR OF ARTS DEGREE

Arts and Science and Law: Seniors who have completed the junior year in the College of Arts and Science of the University of Missouri and who have a total credit toward the degree of 94 hours, including all of the specific requirements for the A.B. degree, and who then become candidates for both the degree in Arts and Science and the degree in Law may count toward the A.B. degree work from the first year in law to an amount not exceeding 30 credit hours.

Arts and Science and Medicine: Seniors who have completed the junior year in the College of Arts and Science of the University of Missouri and who have a total credit toward the degree of 94 hours, including all of the specific requirements for the A.B. degree, and who then become candidates for both the degree in Arts and Science and the degree in Medicine may count toward the A.B. degree work from the first year in Medicine to an amount not exceeding 30 credit hours.

## BACHELOR OF SCIENCE

The degree Bachelor of Science (B.S.) is designed for students interested in more professional training in chemistry or physics than is possible under the program for the A.B. degree. The candidate must meet the
requirements numbered 1, 2, and 3 a for the degree Bachelor of Arts, and must acquire a reading knowledge of some foreign language. Such knowledge would, in general, amount to training equivalent to that given in the first ten semester hours of a language offering. He must complete mathematics through Calculus I, and shall pass a minimum of sixteen semester hours in the areas of humanistic and social studies. The department in which the candidate majors will plan a specialized but integrated program which shall include at least twenty-seven semester hours composed of courses offered by that department. The requirements for junior status under the B.S. degree are the same as those stated for the A.B. degree as far as points and hours are concerned.

## BACHELOR OF MUSIC

For those desiring to specialize in music as a profession the Bachelor of Music (B.M.) degree offers a maximum concentration in music combined with the elements of a liberal education. This is described under the Area of Concentration in Music.

## CERTIFICATE IN SOCIAL WORK

The Certificate in Social Work is granted to those students who complete at least thirty semester hours in the graduate curriculum offered by the Department of Social Work. The curriculum, which is accredited by the American Association of Schools of Social Work as a standard one year program, is designed for those students planning to make social work a career. The Certificate is evidence of the satisfactory completion of one year of professional social work training. Students interested in such training should consult the special announcement of the Department of Social Work and, if possible, confer with the chairman of the department.

## PROVISIONS APPLICABLE TO ALL DEGREES

Proficiency in English: All students must in their junior year pass a test of their proficiency in English unless specifically excused under regulations of the faculty. No student will be recommended for graduation until his English is satisfactory.

## Courses Regularly Offered for Credit in the College of Arts and Science:

| Accounting \& Statistics .........1, 37, 425 | Classical Languages and |
| :---: | :---: |
| Agricultural Chemistry ................... 416 | ology .......................................entire |
| Art (except public school art) | Economics...........51, 199, 300, 303, 304, |
| Astronomy ...................................entire | 306, 310, 311, 315, 319, 329, 350, 361, |
| Botany ........................................entire | 368, 369, 380. |
| Bacteriology and Preventive | Education, A102, B125 |
| Medicine ......................................... 25 | English (except 102 and 103) |
| Chemistry ....................................entire | French and Italian .....................entire |
| Citizenship ..................................entire | Geology and Geography ..............entire |


| Germanic and Slavic Languages ..entire | Physics ..........................................entire |
| :---: | :---: |
| History .........................................entire | Physiology ....................................... 201 |
| Home Economics ......50, 110, 130, 145, | Political Science ...........................entire |
| 150, 160, 317, 318, 346, 347, 357. | Psychology ....................................entire |
| Journalism .................................100, 101 | Rural Sociology ........75, 320, 340, 420, |
| Mathematics (except 2) | 440. |
| Military Science and Tactics .... 16 hours | Sociology and Anthropology ........entire |
| Music (except public school music) | Social Work ...................................entire |
| Naval Science .......................... 24 hours |  |
| Philosophy .....................................entire | Zoology ..........................................e.entire |

Electives From Other Divisions: A limited number of courses in other divisions are open as electives with the prior approval of the area advisor and the Dean. Under no circumstances may these electives exceed 18 hours.

Credit in Military and Naval Science: A total of 16 hours credit in Military Science and Tactics or 24 hours credit in Naval Science and Tactics may be counted toward the A.B. degree. All such credit in excess of 12 hours will be counted as electives from other divisions, the total of which may not exceed 18 hours.

Credit in Religion: Courses in the Bible College of Missouri, which is located near the campus of the University, are open as electives to students regularly enrolled in the College of Arts and Science. Credit for such courses must meet with the approval of the Dean of the College of Arts and Science. The total credit for courses taken in the Bible College may not exceed 14 hours.

## Freshman-Sophomore Programs

Freshmen and sophomores in the College of Arts and Science normally take either the courses necessary to satisfy the general education requirements of the College or those which will prepare them to enter one of the professional schools. In either case, the program during the first semester of the freshman year is much the same; thereafter, however, the pattern of courses gradually diverges. It therefore does not make a great difference whether a beginning freshman has decided what his purpose is in attending college or for what profession he wishes to prepare himself. After the first semester, however, it becomes increasingly important for him to decide as to his educational objective, and after the second semester he is likely to lose time and credit if he is still undecided.

Beginning students working toward an A.B. degree, as well as those who still are indefinite as to purpose, are expected to take the skills and general education courses required for the A.B. degree. The skills courses include English composition and rhetoric, mathematics, logic, speech, and foreign language, as explained on page 6. The general education requirements are explained on page 7 .

## PRE-JOURNALISM

For a student who plans to enter the School of Journalism after the required 60 hours in Arts and Science, the program is similar to that of the A.B. student. There are these differences, however: the student must have a reading course in a foreign language beyond the first 10 semester hours; he must present 6 hours of English literature, 3 hours of American Government, 3 hours of General Economics, and a course in biological or physical science. Since the survey courses in American Government and General Economics given in the University of Missouri are five-hour courses, this means that students who enter the College of Arts and Science for their freshman and sophomore years must take 5 hours of each, instead of 3 hours.

The Memorial Tower, in all its Gothic beauty, dominates the White Campus.


## PRE-BUSINESS AND PUBLIC ADMINISTRATION

Pre-Business and Public Administration students, like pre-Journalism students, must present 60 hours for entrance to the School of Business and Public Administration. These students must complete their freshman English, from 3 to 5 hours in college mathematics, a five-hour course in American Government, a five-hour course in American History, a five-hour course in General Economics, a four-hour course in Statistics, and a four-hour course in Elementary Accounting. Neither foreign language nor science is required, although both are accepted as electives to complete the 60 hours.

## PRE-MEDICAL

Pre-Medical students must take English 1 and 2. They must also have at least 8 hours of German, French, or Spanish. They are required to complete courses in General Zoology, 5 hours; Comparative Anatomy, 5 hours; General Physics, 8 hours; General Inorganic Chemistry, 8 hours; and Organic Chemistry, 5 hours. Pre-Medical students must spend three years, rather than two years, in the College of Arts and Science; and if they plan their programs of courses carefully and wisely, they may complete all the specific requirements for the degree of Bachelor of Arts in three years. As explained under combined courses for the A.B., above, there is an arrangement between the School of Medicine and the College of Arts and Science allowing such students, after completion of the first year of medicine, to receive the degree of Bachelor of Arts. The first two years of college work may be completed in another institution, but the third year must be taken in the College of Arts and Science of the University of Missouri; and the whole program of the three years must be planned with great care or else the specific requirements will not be completed by the end of the third year. This arrangement to secure the Bachelor of Arts degree at the end of the first year of medicine does not apply to students who do not take their third year in the College of Arts and Science of the University of Missouri, or who go elsewhere to enter a school of medicine.

## PRE-LAW

The School of Law has no specific requirements for entrance except that the student must have completed in residence (correspondence courses not acceptable) 90 hours of approved college work acceptable for a bachelor's degree, not including more than ten per cent of such credit in non-theory courses "in military science, hygiene, domestic arts, physical education, vocal or instrumental music or other courses without intellectual content of substantial value." All of the acceptable pre-legal work must have been passed with an average grade of at least medium. As explained before, there is an arrangement between the College of Arts and Science and the School of Law whereby students who plan their work carefully may complete all the specific requirements for the A.B. degree except the total number of hours,
in three years. They then can enter the School of Law and earn the degree of Bachelor of Arts at the end of the first year of law.

## PRE-THEOLOGICAL

A student who expects to enter a theological seminary shou.d choose his area of concentration with a view toward meeting the entrance requirements of the seminary he plans to attend. Appropriate areas of concentration are in the humanities and social sciences with advisers in the departments of philosophy, English, history, sociology and psychology. A student in the College of Arts and Science may elect as many as fourteen semester hours in the field of Religion. These courses are available in the Bible College of Missouri.

It is well for a student to communicate with the seminary of his choice as early as possible in order to have ample time to meet the requirements.

## Junior-Senior Programs

After the completion of the first two years of college work as described briefly in the preceding pages, with its emphasis upon breadth of training, the student should turn his attention to a greater mastery of one area of human knowledge. We speak thus of the general education of the first years of the college program, and the area of concentration during the later years.

Substantial evidence exists to show that a liberal education which has both breadth and depth not on!y prepares one for a richer and more satisfying life, but is also better preparation in a direct vocational sense for most of the occupations than more narrowly planned vocational programs. For the learned professions such as law and medicine, it is a highly desirable preparation.

The choice of an area of concentration is vitally important. It not only gives the student depth in the mastery in one of the fields of human thought, but also has important vocational implications.

## The Choice of an Area of Concentration

A student should choose his area of concentration before the beginning of his junior year, preferab'y by the end of the first semester of his sophomore year. He should select the general area-humanities, science and mathematics, or social studies-the subject matter of which seems to him best designed to enlarge and enrich his life and to equip him for wide service to his fellow men. This choice, however, should not be made without serious consideration. A careful study of this bulletin and of the offerings of the various departments as listed in the University catalog, consultations with teachers and college advisers as well as with parents, and a visit to the University counseling bureau are all strongly urged. When the choice of an area has been made, the student should go to an adviser in one of the departments in that area and work out an exact program of courses in that and related departments. This program must contain a minimum of 45 hours, at least 18 of which must be in the depart-
ment of the student's adviser. The program should be typed on an area-ofconcentration blank and approved by the adviser and the dean before registration for the subsequent semester.

It should be noted that each area of concentration program is an individually planned program, adapted to the particular needs and interests of the student for whom it is worked out. Rarely are two programs exactly alike. It is not expected, therefore, that the programs outlined below will be followed in their entirety in each case. But these programs do show the general patterns advised by the departments and include some examples of the more specialized and professional types of programs administered by the college and approved by the departments.

## ART

The work of the Department of Art is not organized as a professional school, but stresses art as an essential part of a liberal education. With such a program, the area of concentration would be made up predominantly of courses in art in conjunction with offerings in philosophy, literature, and history. But for the student who wishes to lay the foundation of a professional career, other areas of concentration are open. Those wishing to enter the practice of the fine arts as a profession may take most of their work in drawing and painting; those wishing to become art historians and to enter teaching or museum work will have a program emphasizing courses in art history. Others of the numerous possible careers for which the student may prepare are advertising artist, industrial designer, interior decorator, magazine and book illustrator, scientific artist, occupational therapist and teacher of art. No courses are at present given in architecture; students planning to enter this field should take an area of concentration in art as a foundation. Some flexibility in the selection of courses is permissible within the possible areas of concentration in various fields.

Two sample area programs centering around art are given below. The first is a broad program combining the work in art with courses in a number of the other humanities. The second is a more intensified program, stressing the history of art.

## I

Art 11—Ancient and Medieval Art ..... 2
Art 12-Renaissance and Modern Art ..... 2
Art 14-Modern Painting ..... 3
Art 312-Italian Renaissance Painting ..... 3
Art 2-Introduction to Art ..... 3
Art 19-Composition I ..... 2
Art 77-Painting I ..... 3
Art 368-Drawing I ..... 3
History 231-Contemporary Europe ..... 3
History 326-Medieval Culture ..... 3
English 321-World Literature ..... 3
English 322-World Literature ..... 3
Classics 112-Greek Literature in Translation ..... 2
Classics 225-Classical Drama in Translation ..... 2
Music 21-Music Literature ..... 2
Music 224-Symphonic Literature ..... 2
Philosophy 315-Philosophical Ideas in Literature ..... 3
Fhilosophy 317-Aesthetics ..... 3
II
Art 2-Introduction to Art ..... 3
Art 3-Appreciation of Art ..... 2
Art 11-Ancient and Medieval Art ..... 2
Art 12-Renaissance and Modern Art ..... 2
Art 14-Modern Painting ..... 3
Art 20-Art of America ..... 3
Art 75-Artcraft I ..... 3
Art 312-Italian Renaissance Painting ..... 3
Art 313-Northern Renaissance ..... 3
Art 316-Italian Renaissance Sculpture ..... 2

The north entrance to the Red Campus makes an attractive gateway.

Art 318-History of Prints ..... 2
Art 319-Medieval Sculpture ..... 2
Art 330-Leonardo and Michelangelo ..... 2
Art 368-Drawing I ..... 3
Classics 36-Introduction to Greek Art ..... 2
Classics 60-Mythology ..... 2
Classics 336-Greek Art ..... 3
Philosophy 317-Aesthetics ..... 3
Music 21—Music Literature ..... 2

Area of concentration programs are also available for more specialized objectives, such as Commercial Design and Illustration, Textile Design and Fashion Illustration, and Occupational Therapy. The department may be consulted for details about these and other programs.

## ASTRONOMY

The Department of Astronomy does not offer an area of concentration. Students whose interests are in this field should consult the Departments of Physics and Mathematics.

Courses offered by the Department of Astronomy are designed to serve three objectives: first, to widen the cultural background of students whose major interests lie outside the domain of the physical sciences; second, to serve the needs of students concentrating on mathematics or one of the physical sciences for work supplementary to their fields of specialization; and third, to prepare the occasional student who desires to specialize in the field of astronomy for graduate work.

The following courses are intended primarily to widen the cultural backrgound of students whose major interests lie outside the field of physical sciences:

Astronomy 1—Introduction to Astronomy ............................................. 5
Astronomy 2-Introduction to Astronomy ................................................ 3
Astronomy 3—Elementary Observing ..................................................... 1
Astronomy 101—Descriptive Astronomy ..................................................... 3
Courses 1 and 2 may also serve the second objective, and constitute a primary requirement in connection with the third objective of the department.

Astronomy 12, Spherical Trigonometry, will be of value to students planning to specialize in astronomy, civil engineering, mathematics, naval science, or physics.

Astronomy 310, Celestial Mechanics, is essential to students planning to specialize in astronomy and may be of great value to students with area programs emphasizing mathematics or physics.

Other courses offered by the department are intended primarily for students who desire to specialize in astronomy for graduate work.

## BOTANY

An area of concentration centering about plant science offers an excellent basis for a liberal education and for numerous and varied vocational
opportunities. The demand for research specialists with good fundamental botanical training has been stimulated by the discovery of new uses of plant products in the manufacture of synthetic rubbers and paints, cellulose plastics, and many other products. The development of penicillin has opened a vast new field of research in the antibiotic action of micro-organisms. Research workers are active in the development of herbicides and fungicides, and plant scientists and chemists collaborate in the development and testing of new compounds.

The interrelationships of the biological and physical sciences necessitate an understanding of the basic principles of chemistry and physics for the interpretation of biologic observations, particularly in the fields of plant nutrition, plant pathology, plant ecology, and bacteriology. Areas of concentration in these subjects include courses in the physical sciences and mathematics. A knowledge of statistical methods for the evaluation of experimental data is very desirable.

The Department of Botany provides areas of concentration to meet the needs of individual students. Some of the objectives are (1) training as technicians and research workers in plant science; (2) training as teachers of plant science or biology for work in the colleges and universities; and (3) training as teachers and supervisors of nature study and elementary science in the public school system. Programs may be arranged to give professional and vocational training in plant physiology, genetics, morphology, ecology, anatomy, pathology, bacteriology, taxonomy, and mycology. For general training in the field of botany the following courses should be included in the area of concentration:
Botany 1-General Botany ..... 5
Botany 10-Elementary Taxonomy ..... 3
Botany 201-Taxonomy ..... 5
Botany 202-General Bacteriology ..... 3
Botany 203-Plant Physiology ..... 5
Botany 303-Morphology of Seed Plants ..... 5
Botany 305-Histological Methods ..... 3
Botany 306-Plant Ecology ..... 3
Botany 307-Mycology ..... 3
Botany 308-Plant Anatomy ..... 5
Chemistry 1, 2-General Inorganic Chemistry ..... 8
Chemistry 27-Qualitative Analysis ..... 3
Chemistry 210, 212-Organic Chemistry ..... 8
Physics 1, 2-Elementary College Physics ..... 8

## CHEMISTRY

The Department of Chemistry offers two areas of concentration in the natural sciences leading to the A.B. degree, and a more specialized course of study leading to the degree of Bachelor of Science.

In the first program for the A.B., the area of concentration includes such courses in mathematics and physics as will prepare the student for
industrial work in chemistry or for graduate study of chemistry. An additional course in physical chemistry and a course in organic synthesis must be added to this program before the student is accepted as a candidate for a graduate degree in chemistry.

In the second program, the area of concentration includes enough courses in the biological sciences to prepare the student for the study of medicine. Since a knowledge of fundamental chemistry is essential for an understanding of modern medicine, this program includes basic courses in inorganic, organic, analytical and physical chemistry. This area is especially recommended for students who do not intend to become professional chemists.

The curriculum leading to the degree of B.S. in Chemistry includes enough work in mathematics, physics and chemistry to prepare the student adequately for graduate study of chemistry. The B.S. degree includes enough courses in the natural sciences and mathematics to enable the student to be certified to the American Chemical Society as having fulfilled the minimum requirements established for professional training of chemists.

Below is a sample area of concentration program for a student planning to do graduate work in chemistry or to go into industrial chemistry:

Chemistry 1—General Inorganic Chemistry ........................................... 5
Chemistry 2—General Inorganic Chemistry ........................................... 3
Chemistry 27—Qualitative Analysis ........................................................... 3
Chemistry 210—Organic Chemistry ............................................................. 3
Chemistry 211—Organic Chemistry Laboratory ........................................ 2
Chemistry 212-Organic Chemistry ............................................................. 3
Chemistry 221—Quantitative Analysis ....................................................... 3
Chemistry 223—Quantitative Analysis ....................................................... 3
Chemistry 231—Physical Chemistry ............................................................. 3
Chemistry 232—Physical Chemistry Laboratory ........................................ 2
Physics 23-General Physics ........................................................................ 5
Physics 24—General Physics ........................................................................ 5
Mathematics 9—Trigonometry .................................................................. 2
Mathematics 10—College Algebra ............................................................... 3
Mathematics 11—Analytical Geometry ..................................................... 5
Mathematics 25-Differential Calculus ..................................................... 5
Mathematics 201—Integral Calculus ........................................................... 5
For students working towards a Bachelor of Science degree in Chemistry, 213 (Organic Synthesis), 233 (Physical Chemistry), 234 (Physical Chemistry Laboratory), and 315 (Organic Chemistry) -a total of nine hours-should be taken in addition to the courses listed above.

## CLASSICAL LANGUAGES AND ARCHAEOLOGY

Areas of concentration with the maior interest in the Classics may emphasize Latin or Greek or a combination of both, together with other courses in classical art, history and similar fields, or with various modern foreign languages, or with English. The study of the classical languages, literature, and art is designed to provide a general cultural background and
an understanding of the roots of modern civilization, to lay a firm foundation for the study of modern languages and literatures, especially the Romance languages (French, Italian, Spanish) and English, and to deve'op teachers of Latin, or Latin in combination with such subjects as English or mathematics.

For those planning to go into Classical Archaeology (Greek or Roman) post-graduate work is essential; the best preparation is an area of concentration in Latin or Greek, or both, including courses in Greek Art, Greek and Roman Civilization, Greek Mythology (Classical Languages 36, 336, 240, 245, 60), Greek and Roman History (History 202, 301, 306), Anthropology (Sociology 60), Geology (Geology 1, 30), Drawing (Art 5, Mechanical Engineering 1), and Surveying (Civil Engineering 20). An adequate reading knowledge of French and German is also essential.

Registration is a busy time for students-and for the faculty members who check the students' programs as finally determined.


In an area of concentration emphasizing Latin, the following courses are to be taken, except as the work has been covered in high school courses :

Latin 1—Beginning Latin ............................................................................ 5
Latin 2—Caesar ............................................................................................. 5
Latin 4—Grammar ........................................................................................ 2
Latin 10—Cicero's Orations ........................................................................... 3
The following courses constitute a minimum (18 hours)) requirement:
Latin 100—Vergil ........................................................................................... 5
Latin 101—Cicero's Essays ............................................................................ 5
Latin 102—Pliny ............................................................................................. 2
Latin 103—Ovid ................................................................................................ 3
Latin 310—Horace .......................................................................................... 3
For the remaining 12 to 22 hours of the area of concentration requirement, the student will take further work in Latin selected according to his needs from courses in the 300's, in Greek, in supporting courses in the department, or in related fields, such as Greek and Roman history, other languages, English, history of art, religion, etc.

## ECONOMICS

The Department of Economics and Business performs the dual function of providing courses in economics for students in the College of Arts and Science as well as more specialized courses intended for students in the School of Business and Public Administration. The two types of courses are listed separately in the statement of courses which will be found in the University Catalog. Appropriate objectives include pre-law training, basic preparation for teaching economics at the college level, and government service with entry jobs such as junior economist, junior administrative technician, and junior analyst. In addition, the study of economics provides one appropriate foundation for a liberal education in public affairs through its critical analysis of the operation of our economic system.

A program in economics should include the following as a minimum:
Economics and Business 51—General Economics .................................... 5
Economics and Business 310—Labor Problems ......................................... 5
Economics and Business 329-Money, Credit \& Banking ........................ 5
Economics and Business 303-Corporation Finance ................................ 3
or
Economics and Business 304—Principles of Marketing .......................... 3
At least six more hours should be selected from other departmental courses as follows:

The Production and Distributing Organizations
Economics and Business 304—Principles of Marketing .......................... 3
Economics and Business 306-Transportation ......................................... 8
Economics and Business 325-Foreign Trade ............................................ 2
Economics and Business 319-Corporation Concentration \& Control .. 2
Finance
Economics and Business 303-Corporation Finance ................................ 3
Economics and Business 333-Investments ..... 3
Economics and Business 368-Business Fluctuations ..... 3
Labor Relation
Economics and Business 311-Collective Bargaining ..... 3
Economics and Business 320-Government and Labor ..... 3
Government Service
Economics and Business 306-Transportation ..... 3
or
Economics and Business 380-Public Utilities ..... 3
Economics and Business 325-Foreign Trade ..... 2
Economics and Business 315-Public Revenues ..... 4
Public Affairs
Economics and Business 361-Comp. Econ. Systems ..... 3
Economics and Business 325-Foreign Trade ..... 2
Economics and Business 315-Public Revenues ..... 4

Because economic data are very generally presented in statistical or accounting forms, those who expect to work with the materials of the subject should take Accounting and Statistics 1 (Statistics), and 37 (Elementary Accounting). These courses are particularly necessary for those who plan to enter government service as economists or analysts.

The remainder of the area program is worked out with the adviser to fit the specific objective of the student. Appropriate supporting courses may be selected from history, political science, or sociology. Such courses should not be a miscellany of unrelated subjects, but must fit into a unified program consistent with the student's objective.

## ENGLISH

English plays an obviously important role in a liberal education. Ability to write one's native language clearly and effectively, and knowledge of the great heritage of literature in that language are two of the outstanding marks of the truly liberally educated person. Moreover, besides the traditional cultural enrichment, a student specializing in English prepares himself, directly or indirectly, for a number of vocational opportunities such as writing, teaching, and many types of journalistic, editorial, and radio work.

The departmental requirements for an area of concentration centering about English are as follows:

1. A writing course above the freshman level : English 50 (Narration), or English 60 (Exposition).
2. A course in either 325 (Chaucer), or 319 or 320 (The English Language). (The student specializing in Creative Writing may substitute a course in later literature.)
3. A course in the Renaissance or Seventeenth Century: 335 or 336 (Shakespeare), 331 (Elizabethan Literature) or 345 (Milton).
4. A course in the Neo-Classical period: 365 (The Age of Reason) or 356 (Johnson and His Time).
5. A course in the Nineteenth Century: 365 (The Romantic Period), 366 (The Victorian Period), or 371 (Nineteenth Century Prose).
6. A course in American Literature: 375 or 376 (American Literature), 377 (The American Novel, or 378 (The Literature of the West). 377 (The American Novel), or 378 (The Literature of the West).
The English-centered area is expected to emphasize one of these three fields: English Literature, American Literature, Creative Writing. A typical area program for a student emphasizing English Literature is as follows:
English 60—Exposition ................................................................................ 3
English 319—The English Language, Part One ............................................ . 3
English 335-Shakespeare ............................................................................ 3
English 336—Shakespeare .............................................................................. 3
English 356-Johnson and His Time .............................................................. 3
English 366-The Victorian Period ................................................................. 3
English 376-American Literature ...................................................................... 3
English 362—The English Novel ....................................................................... 3
Classics 60—Classical Mythology ..................................................................... 2
Classics 112-Greek Literature in English Translation .......................... 2
History 321—Tudor and Stuart England .................................................... 3
History 325-The British Empire ................................................................. 3
History 327-Renaissance and Reformation ............................................... 3
Ph'losophy 29—Early European Philosophy ........................................... 3
Philosophy 315-Philosophical Ideas in Literature .................................. 3
Philosophy 345-Nineteenth Century Philosophy ..................................... 3
A similar type of program may be worked out for the student wishing to emphasize American Literature.
The student interested in Creative Writing would follow a program similar to the following:
English 50—Narration .................................................................................. 3
English 60—Exposition ................................................................................ 3
English 301—The Short Story ....................................................................... 3
English 302—Advanced Writing ..................................................................... 3
English 331—Elizabethan Literature ............................................................ 3
English 355-The Age of Reason ................................................................... 3
English 371—Nineteenth Century Prose ..................................................... 3
English 377—The American Novel ................................................................ 3
English 390—Modern Poetry ......................................................................... 3
English 393—Recent Fiction ........................................................................ 3
English 317—Introduction to Criticism ....................................................... 3
English 318—Introduction to Criticism ....................................................... 3
English 322—World Literature .................................................................... 3
Philosophy 315-Philosophical Ideas in Literature .................................... 3
Speech 6-Introduction to the Theater ................................................... 2
Speech 106—Types of Radio Address ............................................................ 3
The programs outlined above are, of course, merely illustrative; many variations are possible. A number of courses in Art, Classical Languages, Music, French, German, Spanish, Italian, History, Philosophy, and Speech
can be worked appropriately into the area program centered about English.
One other type of program needs to be mentioned: the Honors program for outstanding students, selected from high-ranking sophomores who are interested in a carefully worked out sequence which will demand the best from the superior student. This program, covering the junior and senior years, is substituted for the usual area of concentration. Students interested in this curriculum may consult the chairman of the department for specific details.

## FRENCH AND ITALIAN

The study of French and Italian civilization contains much to enrich our lives as individuals as well as to make us more conscious of the brotherhood of nations. Its stress on cultural values encourages the study of not only the language and literature of these peoples, but also their art, music, history, and classical heritage. Area of concentration programs embracing such comprehensive study are designed for all those who desire a liberal

A zoology laboratory offers fascinating glimpses into a microscopic world.

education as well as for prospective teachers of foreign languages and English. Less intensive programs of study can be worked out in co-operation with other departments for prospective journalists, foreign correspondents and representatives, diplomatic agents, translators for business firms, as well as for musicians, artists, librarians, students expecting to study abroad, and others, according to their respective needs.

Making out his program in consultation with his adviser, the student will normally be expected to complete not less than 24 hours in French beyond the elementary and intermediate courses.

An area of concentration emphasizing French is as follows: Required courses (beyond the Elementary and Intermediate):

103-Advanced French Reading 3
106-Composition and Oral Work 2
303, 304—Composition and Conversation ................................................... 8
207, 208-Masterpieces of French Literature ............................................ 6
Elective courses in French and Italian: all undergraduate courses listed in the catalog.

The area of concentration will be completed by such courses in other foreign languages, in English, and in other humanistic fields as contribute towards a unified program of study.

## GEOGRAPHY

Geography offers a valuable area of concentration in the social studies for students interested in general education. Government agencies, large business firms, and educational institutions all offer exceptional opportunities for the trained geographer The federal government keeps a corps of geographers on its staff to do research and to serve as sources of information on the resources and peoples of the world. State and city governments need geographic advice and research in their attempts to cope with expanding industrial demands and shifting population trends. Many large businesses have found geographic information essential, especially in the areas of foreign travel and foreign trade. Large aviation firms have been conducting extensive geographic surveys, both domestic and foreign. Finally, there are many vocational opportunities for teaching geography in universities, colleges, and public schools.

The following is a sample area of concentration in the social sciences centered about geography. Other areas of concentration may be arranged with emphasis on geography and history, geography and sociology, geography and political science, geography and economics, geography and mathematics, geography and foreign language, and geography and science.
Geography 6-Introductory Geography ..... 3
Geography 110-Geography of North America ..... 3
Geography 112-Geography of Europe ..... 3
Geography 125-Economic Geography ..... 3
Geography 142-Introduction to Meteorology ..... 3
Geography 165-Climatology ..... 2
Geography 319-Conservation of Natural Resources ..... 3
Geography 360-Geography of South America ..... 3
Geography 372-Geography of Asia ..... 3
Economics 51-General Economics ..... 5
Economics 306-Economics of Transportation ..... 3
Political Science 1-American Government ..... 5
History 20-American History ..... 5
History 110-Latin American History ..... 3
Sociology 1-General Sociology ..... 3
Sociology 60-General Anthropology ..... 3

## GEOLOGY

Geology is a study of the structure and composition of the earth, and of the record of its physical and biological history during the two billion or more years of its existence as a planet. It is a science in which the basic laws of other physical and biological sciences are applied to the interpretation of the composition and history of the earth. Geology is probably best known for the part it plays in the location and recovery of mineral resources, and in the intepretation of landscape features. In addition to these more practical and better known aspects of the science, many lesser known phases are valuable and interesting.

Inasmuch as "the present is the key to the past," knowledge of the geologic past gives significance and perspective to the present; thus, geology makes a unique contribution to a liberal arts education.

Professional training in geology today must take cognizance of the increasing difficulties of discovering new mineral resources, and of recent refinements in geologic technique. At least a year of graduate study is now essential, except in special cases. Undergraduate preparation should include college courses in chemistry, mathematics, and physics.

At present, about half the geologists of the United States are engaged in the petroleum industry, while the rest are employed in federal and state geological surveys, in national parks, mining and development companies, and in teaching. Many women geologists are now working in government service, laboratory work in petroleum and mining, museums, and library research.

The following area of concentration is suggested for students with a professional interest in geology. Other areas of concentration may be arranged with emphasis on geology and zoology, geology and botany, geology and physics, geology and chemistry, geology and business, geology and geography, and geology and wildlife conservation.
Geology 1-Principles of Geology ..... 5
Geology 25-Advanced General Geology ..... 4
Geology 30-Common Rocks and Minerals ..... 3
Geology 118-Field Methods ..... 2
Geology 205 or 336-Summer Field Course ..... 8
Geology 307-Mineralogy ..... 5
Geology 320-Historical Geology ..... 3
Geology 321-Introduction to Paleontology ..... 3
Geology 345-Economic Geology ..... 3
Chemistry 1 and 2-General Inorganic Chemistry ..... 8
Chemistry 27-Qualitative Analysis ..... 3
Mathematics 7-College Algebra ..... 3
Mathematics 9-Trigonometry ..... 2
Physics 1 and 2-Elementary College Physics ..... 8

## GERMAN

German language and literature present rich resources for cultural development. Advanced study in the field of German is designed to develop teachers of the German language and literature. German is useful for students planning to work with private and public agencies dealing with German-speaking regions. For such students, various areas of concentration combining German with work in other departments-history, geography, and government-may be planned with the adviser. The student centering his area program around German will normally be expected to complete not less than 24 hours in German beyond German 1 and 2.

An area of concentration emphasizing German would be as follows:
Required courses (beyond German 1 and 2) :
103-Advanced Reading ..... 3
106-Intermediate Composition and Conversation ..... 2
154-Masterpieces in Drama, Lyrics, and Novel ..... 3
Sixteen hours from the following:
206-Advanced Composition and Conversation ..... 2
307-Lessing ..... 3
308-309—Schiller ..... 6
310-311-Goethe ..... 6
312-German Dramatists of the 19th Century ..... 3
313-The German Novel ..... 3
314-Outline of German Literature ..... 3
360-Recent Movements in German Literature ..... 3

Additional courses to complete the area of concentration will be selected from other foreign languages, English, history, or courses in other fields which contribute to a unified program of study.

## HISTORY

Every liberally educated man or woman has a knowledge of history. Scholarly study of the historical past endows the student with a perspective that enables him to live more intelligently in the contemporary world. In addition to its cultural value, a program emphasizing history can prepare one to become a teacher of history, a researcher, or an archivist; it will furnish the student with a background for journalism, radio, and other fields where a thorough knowledge of history may make the difference between average and superior accomplishment.

The departmental requirements for an area of concentration in which
history is the primary interest are as follows:

1. At least 12 hours of history in the area of concentration must be in courses numbered above 100 .
2. The student must elect one of the following courses in American history; American History, American Colonial History, American Constitutional History, The West to 1865, Economic History of the United States, Diplomatic History of the United States, History of the South, Social Forces in American History.
3. The student must elect one of the following courses in European history: Greek History; Roman History; Medieval Social and Economic History; Tudor and Stuart England; Renaissance and Reformation.
4. At least 12 hours of the total in history must be in courses which are not concentrated primarily on twentieth century developments.

It is possible to classify history either as one of the social studies or as one of the humanities. For this reason many desirable combinations are possible with history. For example, a student's needs might best be met by combining English history and literature.

The University Library now has over a half million books.

Appropriate courses from which to make up the area of concentrationof such a student would be the following:
History 1 and 2-Modern Civilization ..... 6
History 122-English Legal and Constitutional History ..... 3
History 231-Contemporary Europe ..... 3
History 321-Tudor and Stuart England ..... 3
History 325-The British Empire ..... 3
History 327-Renaissance and Reformation ..... 3
History 363-American Colonial History ..... 3
English 30 and 40 -English Life and Literature ..... 6
English 331-Elizabethan Literature ..... 3
English 345-Milton ..... 3
English 335-336-Shakespeare ..... 6
English 355-Age of Reason ..... 3
English 356-Johnson and His Time ..... 3
English 362-The English Novel ..... 3
English 365-The Romantic Period ..... 3
English 366-The Victorian Period ..... 3
English 371-Nineteenth Century Prose ..... 3
Philosophy 345-Nineteenth Century Philosophy ..... 3
Philosophy 346-Contemporary Philosophy ..... 3
Similarly, the student interested in American culture may make up a satisfactory program stressing courses in American History and taking relevant courses in English, philosophy, political science, sociology, geography, and economics. For the special program in American Civilization, see page 51.
Students planning to take the A.B. degree in preparation for the study of law may build their area of concentration around history by taking History 122, English Legal and Constitutional History and 171, American Constitutional History, along with other appropriate courses in the social studies. Several different types of areas of concentration are available using history with the other social sciences, such as economics, geography, political science, and sociology. The department's major adviser should be consulted about the details of these programs.
Those interested primarily in the modern period may elect the area in Background of World Affairs which follows:

## Required Courses:

History 231—Contemporary Europe ........................................................... 3
History 251—Recent United States History ............................................... 3
and one of the three following:
History 335—Modern France ........................................................................ 3
History 336—Modern Germany .................................................................... 3
History 338—History of Russia ................................................................... 3
Political Science 303-European Governments ......................................... 5
Political Science 385-International Organization ...................................... 3
An additional sixteen hours of history must be chosen from the following courses:
History 1 and 2-Modern Civilization ..... 6
History 112-Latin American History ..... 3
History 180 and 181-Foundations of National Power ..... 6
History 291-The Far East ..... 3
History 292-The Near East ..... 3
History 335-Modern France ..... 3
History 336-Modern Germany ..... 3
History 338-History of Russia ..... 3
History 365-Mexican History ..... 3
History 367-The History of Argentina, Brazil and Chile ..... 3
History 371-American Diplomatic History ..... 3
History 372-European Diplomatic History ..... 3
History 380-Economic History of Modern Europe ..... 3
History 391-Modern Intellectual History ..... 3
Additional courses sufficient to bring the total to fifty hours must beselected from the following list, with the work distributed among at leastfour of the following departments:
Economics 51-General Economics ..... 5
Economics 303-Corporation Finance ..... 3
Economics 319-Problems of Corporate Concentration \& Control ..... 3
Economics 361-Comparative Economic Systems ..... 3
Geography 112-Geography of Europe ..... 3
Geography 125-Economic Geography ..... 3
Geography 360-Geography of South America ..... 3
Geography 372-Geography of Asia ..... 3
Geography 374-Geography of Australia and Islands of the Pacific ..... 3
Geography 375-World Regional Geography ..... 3
Geography 396-Geography of the U. S. S. R. ..... 2
Philosophy 325-Social and Political Philosophy ..... 3
Political Science 1—American Government ..... 5
Political Science 304-Inter-American Relations ..... 3
Political Science 305-Political Parties ..... 3
Political Science 309-International Law ..... 3
Political Science 315-Foreign Service Organization ..... 2
Political Science 351-Mexican and Caribbean Governments ..... 3
Political Science 352-South American Governments ..... 3
Sociology 310-Public Opinion ..... 2
Sociology 315-Collective Behavior ..... 3

## MATHEMATICS

Mathematics has always been one of the great fields of learning. The resson for this lies in the method of mathematics-the method of carefully selected and clearly enunciated postulates, of sharply and completely defined concepts, and of painstaking deductions or demonstrations. A student may pursue mathematics for its own sake, for the sake of its uses and applications, or for its value as a humanistic study.

Apart from any usefulness or possibility of application, mathematics embodies a wealth of fascinating, diversified, and profound theories which are continually being extended and elaborated. Research in mathematics affords an endless challenge and stimulus to those capable of undertaking it.

By virtue of its humanistic significance and worth, mathematics holds a high place in a liberal education. For among the chief intellectual concerns of man is the attempt, never wholly successful, to achieve absolute precision, clarity, and cogency in his thinking; and such thinking is mathematical. The most impressive facts of our world are the basic facts of change, permanence, and interrelation. The study of these facts constitutes the very essence of mathematics.

For students who wish to emphasize mathematics, areas of concentration may be arranged with emphasis on pure mathematics, mathematics and statistics, mathematics with physical and natural sciences and philosophy, and mathematics with psychology and sociology. In view of the increasingly important role which applied mathematics is playing in the aircraft, electrical communication, and other industries, courses are included which will give students adequate training along these lines. The following illustrative area of concentration is designed for the student planning to specialize in pure mathematics:

## Required:

Mathematics 9-Trigonometry ..... 2
Mathematics 10-College Algebra ..... 3
Mathematics 11-Analytic Geometry ..... 5
Mathematics 25-Calculus I ..... 5
Mathematics 201-Calculus II ..... 5
Mathematics 301-Differential Equations ..... 3
Physics 23-General Physics ..... 5
Physics 24-General Physics ..... 5
Chemistry 1-General Inorganic Chemistry ..... 5A total of 12 hours from among:
Mathematics 304-Advanced Algebra ..... 3
Mathematics 305-Advanced Algebra ..... 3
Mathematics 310-Advanced Calculus ..... 3
Mathematics 311-Advanced Calculus ..... 3
Mathematics 315-Advanced Geometry ..... 3
Mathematics 316-Advanced Geometry ..... 3
Mathematics 320-Function Theory of Complex Variables ..... 3
Mathematics 330-Vector and Tensor Analysis ..... 3
Mathematics 405-Fundamental Differential Equations of Applied Mathematics ..... 3
A total of 9 hours among:Physics 212-Heat3
Physics 304-Electrical Measurements ..... 3
Physics 310-Electricity and Magnetism ..... 3
Physics 313-Eight ..... 3
Physics 314-Mechanics ..... 3

## MUSIC

Students in music have a choice of three curricula. Those desiring the maximum in a liberal education with emphasis in music will se ${ }^{1}$ ect the program for the Bachelor of Arts degree. Students desiring the maximum concentration in music will select the program for the Bachelor of Music degree. Those who plan to teach music in the public schools should select the program for the Bachelor of Education degree with a major in music education.

The Bachelor of Arts Degree with Major Concentration in Music
Students desiring to elect music and additional humanities courses as their area of concentration on the A.B. degree should plan their work from the freshman year with an adviser from the department of music. The following options are recommended:
I. Concentration in Music Theory, History, and Literature

1. A minimum of 16 hours in music theory, including 10 hours in Harmony (courses 3, 4, 101, 102), and 6 hours in Ear Training (7, 8, 103, 104).

The Concert. Band starts out on its Spring Tour.

2. A minimum of 4 hours in music history.
3. A minimum of 8 hours in applied music (piano, voice, violin, viola, cello, or organ).
4. A minimum of 4 hours in upperclass music courses in addition to the above 1,2 , and 3 .
5. A total of 45 hours, with 20 hours in upperclass courses, including any upperclass courses offered above, in the humanities group of courses, of which up to 40 hours may be taken in music.

## II. Concentration in Applied Music

1. A minimum of 16 hours in applied music (piano, voice, violin, viola, cello or organ).
2. A minimum of 16 hours in music theory (as in 1 above).
3. A minimum of 4 hours in music history.
4. As in 5 above.

## The Bachelor of Music Degree

The B. M. degree is organized with a major in (A) Applied Music, and (B) Music Theory and Composition or History.

All candidates for the B.M. degree are subject to examination by a faculty committee upon completion of the sophomore year and may not continue upperclass candidacy for the degree without approval of the committee.

In addition to the normal schedule of performance at student recitals and as a requirement for graduation, senior students with applied music major will present a public recital program meeting the approval of the department staff.

The Department of Music is an institutional member of the National Association of Schools of Music.

## A. Requirements for a Major in Applied Music

Group I, Applied Music .......................................... 30 to 40 hours
For piano, voice, violin, viola, cello, and organ majors: Study of the major instrument during each year of residence. Credit, 3 to 4 hours per semester for underclass courses, 4 to 5 hours per semester for upperclass courses, to total a minimum of 30 hours in the major intrument, and to include 16 hours of upperclass courses.

For wind instrument majors: Study of the major instrument during each year of residence. Credit, 2 hours per semester for underclass courses, 4 hours per semester for upperclass courses, to total a minimum of 24 hours in the major instrument, and to include 16 hours of upperclass courses. In addition, the following instrumental courses are required: String Instruments, 4 hours; Woodwind Instruments, 2 hours; Brass Instruments, 2 hours; Percussion Instruments, 1 hour.

- Student majoring in voice or an orchestral or band instrument must have upon matriculation, or acquire during residence, the ability to play simple piano accompaniments. Students unable to meet this requirement upon entrance may elect Special Piano (course 50) for a maximum
of 2 hours credit per semester until this requirement is met or a totalof 6 hours in piano is accumulated, which shall be considered satisfac-tion of the requirement.
Group II, Music Theory and History ..... 40 hours
Dictation and Ear Training (2 years) ..... 6
Harmony (2 years) ..... 10
Elementary Counterpoint (1 year) ..... 4
Advanced Counterpoint (1 semester) ..... 2
Form and Analysis (1 year) ..... 4
Orchestration (1 year) ..... 4
Composition (1 year) ..... 4.
Music History (3 semesters) ..... 6
'For majors in wind instruments the requirements listed above arealtered as follows: 4 hours of music history instead of 6 hours, 2 hoursof Band Arranging replace Advanced Counterpoint, and 2 hours ofAdvanced Orchestration are added.
Group III, Academic Courses ..... 30 hours
English Composition and Rhetoric ..... 6
History (Modern Civilization) ..... 3
One Foreign Language ..... 10
English Literature ..... 6
Additional Arts and Science listed course or courses ..... 5
Group IV, Special Requirements and Electives 14 to 24 hours
Voice majors must elect 2 hours of Conducting (course 149) andshould elect additional work in modern languages (French, German, andItalian) so that there may be a total of 10 hours in one as required inGroup III, and 5 hours in each of the other two languages. Majors inwind instruments are required to elect 4 hours in Conducting (courses149,150 ) and a minimum of 4 hours in Concert Band or Orchestra.4 hours in the basic course in military science (required of all non-veteran men students) may be included in this group. Additional coursesto total the required 124 hours for graduation may be selected withapproval of the adviser.
B. Requirements for a Major in Theory and Composition or HistoryFor details of course requirements students should consult an adviserfrom the department or address inquiries to the Chairman, Departmentof Music.
The Bachelor of Education Degree with a Major in Music EducationFor details of course requirements for this degree, see the bulletinof the College of Education.


## PHILOSOPHY

While the vocational opportunities of philosophy are limited to teaching, its contributions to a liberal education are much more extensive. Philosophy studies the principles of clear thinking, and thus provides the proper basis for making effective choices in all fields of activity. It analyzes the social, moral, aesthetic, and religious values that underlie all human behavior, and thus broadens our outlook, resolves conflicts of values, and prepares us for modifications in our value perspectives. It attempts to answer more or less systematically the questions concerning the nature of the world and the meaning of life, which we persist in asking and which we so often answer unconsciously and uncritically.

Because of the peculiarly integrative character of philosophy a great variety of areas of concentration, with philosophy as a center, is possible. Since philosophy is classified as one of the humanities, many combinations are available with literature and the arts. But philosophy may also be appropriately combined with psychology and with history and the other social studies.

The philosophy-centered area must include the following five courses:
Philosophy 1-Elementary Logic ..... 3
Philosophy 5-Introduction to Philosophy ..... 3
Philosophy 29-Early European Philosophy ..... 3
Philosophy 50-Introduction to Ethics ..... 3
Philosophy 205-Modern Philosophy ..... 3A student interested in combining philosophy and sociology may thenadd the following courses:
Philosophy 102-Philosophy of Materialism ..... 3
Philosophy 212-American Ideals ..... 3
Philosophy 345-Nineteenth Century Philosophy ..... 3
Philosophy 346-Contemporary Philosophy ..... 3
Philosophy 325-Social and Political Philosophy ..... 3
Philosophy 310, 311-American Philosophy ..... 4
Sociology 50-General Anthropology ..... 3
Sociology 314-The Family ..... 3
Sociology 315-Collective Behavior ..... 3
Sociology 326-Cultural Anthropology ..... 3
Sociology 310-Public Opinion ..... 2
Sociology 337-Race and Race Relations ..... 2A student who plans to go into the ministry may follow a programwhich emphasizes philosophy and which draws upon related courses inreligion, psychology, sociology, speech, and history. Such a student shouldtake Religion 3 (Fundamental Moral and Religious Values) in his fresh-man or sophomore year, and his area of concentration should consist ofthe five courses listed above, together with courses selected in consultationwith the adviser from the following group:
Philosophy 212-American Ideals ..... 3
Philosophy 320-Philosophy of Science ..... 3
Philosophy 325-Social and Political Philosophy ..... 3
Philosophy 346-Contemporary Philosophy ..... 3
Religion (maximum, including Religion 3, 14 hours) :
Religion 50 -Life and Literature of the Old Testament ..... 2
Religion 60-Life and Literature of the New Testament ..... 2
Religion 130-Comparative Religion ..... 2
Religion 145-Religon of the Ancient Hebrews ..... 2
Religion 154-History of Religion in America ..... 2
Religion 171-Philosophy of Religion ..... 3
Sociology 1-General Sociology ..... 3
Sociology 50-Social Disorganization ..... 3
Sociology 314-The Family ..... 3
Psychology 1-General Psychology ..... 3
Psychology 30—Applied Psychology ..... 3
Psychology 150-Social Psychology ..... 3
Psychology 220-Abnormal Psychology ..... 3
Speech 2-Voice and Articulation ..... 2
Speech 75-Public Speaking ..... 3

Students in Speech studying a model of the human ear.

Speech 76-Public Speaking ..... 3
Speech 300-Special Problems ..... 1-4
History 231-Contemporary European History ..... 3
History 251-Recent U. S. History ..... 3

## PHYSICS

The basic knowledge embodied in physics has the highest type of cultural value for the world today. For the student whose interest is not directly vocational, an area of concentration leading to the A.B. is recommended. For the student planning to use physics in a professional way, the Bachelor of Science program, permitting greater specialization, is suggested. In the past there has been relatively small demand for physicists at this level of training, but the demand is increasing. Positions open to such students have usually been with industrial firms or secondary schools. The greatest demand for physics graduates has been for men with the degrees of Master of Arts, or Doctor of Philosophy; and hence most undergraduate students majoring in physics plan to enter a graduate school.

A typical area of concentration program centered about physics and leading towards the Bachelor of Arts degree is given below. The mathematical training through integral calculus should be completed at an early date.
Physics 1 and 2-Elementary Physics ..... 8
or
Physics 23 and 24-General Physics ..... 10
Physics 213-Light ..... 3
Physics 310-Electricity and Magnetism ..... 3
Physics 312-Heat and Sound ..... 3
Physics 314-Mechanics ..... 3
Mathematics 9-Trigonometry ..... 2
Mathematics 10-College Algebra ..... 3
Mathematics 11-Analytical Geometry ..... 5
Mathematics 25-Differential Calculus ..... 5
Mathematics 201-Integral Calculus ..... 5
Chemistry 1 and 2-General Inorganic Chemistry ..... 8
At least 3 hours from:
Physics 304-Electrical Measurements ..... 3
Physics 306-Atomic Physics Laboratory ..... 3
Physics 307-Nuclear Physics Laboratory ..... 3
Physics 308-Light Laboratory ..... 2

For those students working towards a Bachelor of Science degree this list of courses would remain as above except that approximately 8 hours should be chosen from the group of physics courses numbered 304, 306, 307 , and 308.

## POLITICAL SCIENCE

Although the Department of Political Science is organized as a part of the School of Business and Public Administration, areas of concentration in the social studies, with an emphasis in government, are part of the offerings of the College of Arts and Science.

Students who plan such an area of concentration should take the following courses:

Political Science 1—American Government ........................................... 5
Political Science 5-International Relations .......................................... 3
Political Science 303-European Government ........................................... 5
Political Science 310—Principles of Public Administration .................... 4
Other courses, to be selected in consultation with the adviser, will depend upon the individual student's objective. Many possible combinations are available with courses in economics, history, sociology, geography, and psychology.

A program suitable as preparation for the study of law, for civil service positions, for an understanding of government and its problems in the Western World would include the four courses enumerated above and typically these following:

Political Science 305-Political Parties ........................................................ 3
Political Science 353-Latin American Governments .............................. 5
History 110-Latin American History ......................................................... 3
History 122-English Legal and Constitutional History ........................... 3
History 231—Contemporary Europe ............................................................. 3
History 251—Recent U. S. History ............................................................... 3
Economics 310—Labor Problems .................................................................... 5
Economics 361—Comparative Economic Systems ...................................... 3
Sociology 310—Public Opinion ...................................................................... 2
Sociology 311—Criminology ........................................................................... 3
Other courses, to be selected in consultation with the adviser, might be substituted to meet the individual student's needs.

## PSYCHOLOGY

With psychology as the chief department the area of concentration may be taken either in the social science or the biological science group. Either plan offers many advantages to the student seeking general education in a world where understanding of one's self and others has become so important. A study of psychology offers an advantage to the student planning entry into such fields as sales, advertising, merchandising, administration and supervision, personnel, education, journalism, social service, medicine, religion, law or other areas where a better understanding of human behavior is essential.

Psychologists have found ever widening opportunities for employment in recent years in the applied fields as well as the more traditional teaching
and research careers. An undergraduate major in psychology is required or recommended as preparation for professional training in such areas as personnel, guidance, counseling, consulting, public opinion surveys, public school psychologist, business and industrial psychology, clinical psvchology (including veterans administration work, public and private institutions, child guidance, civil service work, psychometry), and college teaching and research.

Three courses selected from the following advanced laboratory courses ( 6 hours from the $301-304$ group and 3 hours from the $308-312$ group or vice versa) to total 9 hours.

$$
\begin{aligned}
& \text { Psychology 301—Psychology of the Individual .......................................... } 3 \\
& \text { Psychology 302—Psychological Tests \& Measures ...................................... } 3 \\
& \text { Psychology 303-Employment Psychology ................................................... } 3 \\
& \text { Psychology 304—Psychology of Job Efficiency .......................................... } 3 \\
& \text { Psychology 308—Psychology of Emotions .................................................... } 3 \\
& \text { Psychology 310—Psychology of Learning ................................................... } 3 \\
& \text { Psychology 311—Psychology of Sensation \& Perception .......................... } 3 \\
& \text { Psychology 312—Psychology of Action ......................................................... } 3
\end{aligned}
$$

Additional hours in the department to total a minimum of 24 hours.
A program leading to an A.B. in Personnel Management is also offered. This differs somewhat from the above plan in that courses in psychology, economics and sociology are required and courses in economics, business, political science, sociology and education are elected. The student interested in this program should consult a member of the department for particulars as early as possible.

Since a professional career in psychology necessitates graduate work, the undergraduate student preparing for entry into the field should consult a departmental adviser in planning his supporting work as well as his major program. Area of concentration and elective courses will be strongly recommended from zoology, sociology, mathematics, and philosophy. The language requirement should be met by selecting German, French or Russian, and the student should have taken an elementary course in physics. These recommendations are made in order to give the student a wide background training which will prove invaluable in a graduate career.

## SOCIOLOGY

Sociology offers an area of concentration that centers study about the life of a man in social groups. A broad training in sociology is ordinarily the background of those who wish to follow professional careers in Social Work. Other vocational outlets for those trained in sociology are in research, in teaching, and in a variety of governmental positions. For nearly all of these, graduate work is either necessary or desirable.

In order to provide a well-balanced program of training the department has prepared a plan of study required of all students who major in sociology. The curriculum has been divided into five major divisions, based in the main upon the subject matter of the various courses. Students planning an area of concentration with emphasis in sociology will be expected to take at least one course from each of these divisions. Courses marked with an asterisk are offered in the Department of Rural Sociology.
I. Aテthropology: 60 (General Anthropology), 325 (Ethnology), 326 (Cultural Anthropology), 335 (The American Indian), 341 (American Archaeology), 342 (Field Methods in Archaeology), 351 (Special Readings in Anthropology).
II. Population and Race: 305 (Population Trends), 337 (Race and Race Relations) 327 (The Assimilation of Ethnic Minorities), 339 (The American Negro).
III. Institutional and Community Life: 75* (Rural Sociology), 100* (Group Organization), 180* (Group Work), 314 (The Family), 316 (Urban Sociology), 340* (Community Organization).
IV. Social Disorganization: 50 (Social Disorganization), 311 (Criminology), 312 (The Treatment of Crime).
V. Collective Behavior and Social Psychology: 310 (Public Opinion), 315 (Collective Behavior).

The remainder of the student's area program will be comp'eted from other courses offered in sociology or rural sociology (College of Agriculture)
"Pursuit of Happiness," presented by the University Workshop.

together with appropriate courses selected from the departments of Philosophy, Psychology, Political Science, Economics, and History. Political Science 1 and Economics 51 are strongly recommended for all majors in sociology.

The content of an area of concentration program will be determined in terms of the student's general interests, either vocational or intellectual. A student wishing to prepare himself for graduate study in sociology, with research or teaching as an ultimate objective, might work out an area program of 20-30 hours selected from the following courses in sociology:
Sociology 50-Social Disorganization ..... 3
Sociology 60-General Anthropology ..... 3
Sociology 305-Population ..... 3
Sociology 311—Criminology ..... 3
Sociology 313-Social Security ..... 2
Sociology 314-The Family ..... 3
Sociology 315-Collective Behavior ..... 3
Sociology 316-Urban Sociology ..... 2
Sociology 326-Cultural Anthropology ..... 3
Sociology 337-Race and Race Relations ..... 2
Sociology 339-The American Negro ..... 2
Rural Sociology 340-Community Organization ..... 3
The program in sociology might then be supplemented according to thestudent's interest from courses chosen from psychology, political science,or philosophy, such as the following:
Psychology 20-Psychology of Personal Adjustment ..... 2
Psychology 100-Psychological Statistics ..... 3
Psychology 210-Genetic Psychology ..... 3
Psychology 345-Abnormal Psychology ..... 3
Political Science 1-American Government ..... 5
Economics 51-General Economics ..... 5
Philosophy 212-American Ideals ..... 3
Philosophy 311-Recent American Philosophy ..... 3Students with an interest in public service might pursue a programin sociology similar to that outlined above but supplemented with coursesin government, economics, and history, such as the following:
Political Science 1-American Government ..... 5
Political Science 310-Principles of Public Administration ..... 3
Political Scence 301-Local Rural Government ..... 3
Economics 51-General Economics ..... 5
Economics 310-Labor Problems ..... 5
History 231-Contemporary Europe ..... 3
History 251-Recent U. S. History ..... 3
History 351-Social Forces in American History ..... 3
Young women who expect to find their careers in home managementand community service might plan an area program consisting of a mini-
mum of 40 hours chosen from the courses listed below plus ten hours selected from other social studies:
Sociology 1-General Sociology ..... 3
Sociology 50-Social Disorganization ..... 3
Sociology 314-The Family ..... 3
Sociology 315-Collective Behavior ..... 3
Sociology 316-Urban Sociology ..... 2
Sociology 325-Population Trends ..... 3
Sociology 328-Cultural Anthropology ..... 3
Sociology 337-Race and Race Relations ..... 2
Sociology 339-The American Negro ..... 2
Political Science 1-American Government ..... 5
Economics 51-General Economics ..... 5
Psychology 20-Psychology or Personal Adjustment ..... 2
Psychology 210-Genetic Psychology ..... 3
Home Economics 2-Foods ..... 3
Home Economics 116-Home and Its Management ..... 2
Home Economics 130-Nutrition I ..... 3
Home Economics 160-Home Care and Training of Child ..... 3
Home Economics 317-Economic Problems of the Family ..... 3
Home Economics 318-Consumer Buyer and the Market ..... 3
Another type of area program offered by the department is one designedto meet the needs of students who wish to prepare for graduate work inanthropology. This program does not include all the courses required ofother majors in sociology. The student interested in anthropology shouldtake the following area program, or some variation of it approved by thedepartment's advisers in anthropology:
Required:
Sociology 60-General Anthropology ..... 3
Any three of the following four courses:
Sociology 325-Ethnology ..... 3
Sociology 326-Cultural Anthropology ..... 3
Sociology 335-The American Indian ..... 3
Sociology 341-American Archaeology ..... 3
At least six hours to be selected from other courses within the department.

The remainder of the student's area of concentration may consist of related courses in other departments, such as History, Geology and Geography, and Classical Archeology.

For students who plan a professional career in social work, the area program should be planned to include at least 20 hours in sociology, 10 hours in psychology, 10 hours in political science and economics, plus six hours in pre-professional social work courses. For details of this program see the statement of Department of Social Work.

## SOCIAL WORK

The Department of Social Work offers an area of concentration planned to provide a good general education based on the social sciences. This program is organized to meet the needs of three groups of students, as follows:

1. Those who have definitely decided on a career in social work and are planning to enter the graduate school to work for a professional degree or certificate in social work. Completely adequate training for social work requires graduate study. All students interested in such preparation should consult the Graduate School Announcement and the Social Work Department Bulletin. Such graduate training is based on a broad general education in the undergraduate years with concentration in the social sciences.
2. Those students who plan to take junior professional positions in social work before going on to complete their graduate training. For these positions general education with an introduction to social work will prepare the college graduate to perform such work.
3. Students who are not planning a career in social work but who have a general interest in the field or who desire to prepare for civic leadership in the social services. There is a continual need for informed lay leadership to serve on boards, planning councils, and committees in all communities.

To provide the broad study in social sciences essential to preparation for social work in the undergraduate years the Department has planned a number of programs meeting the varied interests of students but all fulfilling the following requirements:

1. At least 20 hours in a combination of undergraduate social work courses and either sociology, economics, political science, or psychology.
2. At least 5 hours from each of the Departments listed above but not selected for the combination with social work courses.
3. An additional 12 hours in the social studies.

For example, the student wanting social work but interested also in economics might take 6 hours in undergraduate social work such as 140 (The Field of Social Work), 150 (Child Welfare), and 170 (Introduction to Social Case Work) and 14 hours in economics including such courses as Economics 51 (General Economics), 310 (Labor Problems), 336 (Personnel Management), and 361 (Comparative Economic Systems). In addition he would need at least 5 hours in each of the following: sociology, political science and psychology.

Students wanting a combination of social work and sociology might substitute in the above for the economics courses such sociology courses as the following, but still keeping at least 5 hours in economics: Sociology 50 (Social Disorganization), 311 (Criminology), 314 (The Family), 316 (Urban Sociology), 326 (Cultural Anthropology).

For students with an interest in psychology there may be outlined a combination of social work and such psychology courses as 20 (Psychology
of Personal Adjustment), 150 (Social Psychology), 210 (Genetic Psychology), 301 (Psychology of the Individual), and 345 (Abnormal Psychology) together with the required 5 hours each in sociology, economics, and political science.

A combination with political science courses may be made using such courses as 301 (Local Rural Government), 306 (Municipal Government and Administration), 320 (The American Constitution), and 310 (Principles of Public Administration).

Students planning to enter this area of concentration should consult the Department of Social Work, where a complete list of the social science courses which may be used in making up the combinations may be obtained.

## SPANISH AND PORTUGUESE

In the area of concentration with Spanish as the chief subject of specialization the Latin American aspects of the work are largely incidental, the greatest stress being placed upon those coordinated courses in the language, literature, and civilization of Spain (and, upon occasion, of Portugal) which may best fit the student for an appreciation of Iberian culture in general, both in the Old World and in the New. Students contemplating eventual graduate work in the Spanish language and literature will of course choose this area of concentration. In addition to the cultural

## At the Art Center in Read Hall students work for fun and not for credit.


interest, students can be trained for practical work as teachers, translators, foreign correspondents, etc., in this area of concentration.

Students will normally be expected to complete not less than 24 hours beyond the Elementary and Intermediate courses, and may take as many as 40 hours. From 10 to 15 hours of Portuguese may be counted as part of the recommended, but not required, courses in addition to Spanish.

Required courses in Spanish (beyond the elementary and intermediate courses) :

Spanish 103—Reading .................................................................................... 3
Spanish 106—Composition ............................................................................ 2
Spanish 205-Composition and Conversation ............................................. 3
Spanish 211—Advanced Composition and Conversation .......................... 2
Fourteen to thirty hours from the following: Spanish 107 (Advanced Reading), Spanish 212 (Advanced Idiom and Oral Studies), Spanish 222 (Commercial Correspondence), and all Spanish courses numbered 300 to 351, with emphasis upon courses $300,307,309,313,314,317,319,328$, and 351.

Additional recommended courses include those in other foreign languages, ancient or modern, English, and courses in other departments which, in the opinion of the adviser, are pertinent to the general program of Hispanic studies.

For the area of concentration in Latin America, see the special areas below (p. 52).

## SPEECH

Area of concentration programs in speech offer both cultural and professional opportunities. Programs in public address, interpretation, and theatre are often elected for cultural reasons, though many students elect them to further a professional aim. Programs in speech correction are somewhat professional in nature, though also affording many cultural advantages. The four main types are as follows:

1. Speech correction and pathology. The field of speech correction offers excellent opportunities to the student in terms of vocational training. Speech correctionists are needed now in school systems, hospitals, and private clinics. Undergraduate specialization in this field leads to opportunities for graduate study and supplements work in psychology, education, vocational guidance, and social work. A cultural opportunity suggested is participation in civic enterprises looking toward the relief of handicapped children and adults.
2. Public Address. Few persons earn a living through public speaking alone; but many increase their civic and professional usefulness through the ability to speak well.
3. Interpretation. Training in interpretation leads to teaching positions in high schools, colleges, and universities. It affords collateral prepara-
tion for positions in radio and the theater. The study of oral interpretation quickens interest in poetry, drama, the essay, and the novel. It prepares for cultivated home-making.
4. Theatre. University courses in theatre, although mainly cultural and recreational, occasionally help students discover aptitudes which lead them into academic or professional theatre or various related business fields, such as radio, window display, dress design, commercial art, etc. If the student is to be an intelligent theatre-goer or movie-goer, he will benefit by courses touching on the critical and practical understanding of all phases of the theatre. The graduate who has taken courses in acting, stage-craft, direction, and production is invaluable in community theatre work and is thus better able to help in the cultural life of his community.

Other areas of concentration may be worked out to meet specific vocational goals related to psychology, social studies, radio, English, languages, and the like.

Below are given two samp'e area programs emphasizing speech, one in Public Address, the other in Theatre. The department may be consu'ted for details about the programs in Speech Correction and Pathology and Interpretation, or about other types of programs which are available.

## Area of Concentration Emphasizing Public Address

Speech 2-Voice and Articulation ..... 2
Speech 6-Introduction to the Theatre ..... 2
Speech 75-Public Speaking ..... 3
Speech 311-American Phonetics ..... 3
Speech 333-Oral Interpretation: Prose ..... 3
Speech 343-Dramatic Interpretation ..... 3
Speech 381-Principles of Rhetoric ..... 3
Speech 371-Discussion ..... 3
Speech 372-Debating ..... 3
Speech 374-Argumentation ..... 3
Speech 376-Public Address ..... 3
Economics 51-General Economics ..... 5
History 251-Recent U. S. History ..... 3
Classics 227-Classical Oratory ..... 2
Selected courses in supporting fields ..... 5
Area of Concentration Emphasizing Theatre
Speech 2-Voice and Articulation ..... 2
Speech 6-Introduction to the Theatre ..... 2
Speech 75-Public Speaking ..... 3
Speech 311-American Phonetics ..... 3
Speech 333-Oral Interpretation: Prose ..... 3
Speech 343-Dramatic Interpretation ..... 3
Speech 381-Principles of Rhetoric ..... 3
Speech 252-Stagecraft ..... 3
Speech 346-Characterization and Acting ..... 3
Speech 361-Principles of Stage Direction ..... 3
Speech 364-Play Production ..... 3
English 335-336-Shakespeare ..... 6
Classics 225-Classical Drama ..... 2
English 331-Elizabethan Literature ..... 3
Selected courses in supporting fields ..... 5

## ZOOLOGY

Students who specialize in zoology in their upperclass years will find the subject matter of fundamental value for subsequent training in medicine, medical technology, public health, teaching, and research-to name only the outstanding examples of its utilization. Work in zoology should be supported by courses in chemistry, physics, and mathematics. If college teaching and research are the objectives, the undergraduate program must be supplemented by graduate study.

Three typical area programs with emphasis on zoology are illustrated below. Other programs may be arranged to meet the needs of the individual student.

## 1. Preparation for Research

Zoology 1-General Zoology ..... 5
Zoology 4-Comparative Anatomy of Vertebrates ..... 5
Zoology 120-Invertebrate Zoology ..... 3
Zoology 222-Embryology and Histology of Vertebrates ..... 5
Zoology 310-Parasitology ..... 3
or
Zoology 320-Endocrinology ..... 3
Zoology 330-Cellular Physiology ..... 5
or
Zoology 335-Cytology ..... 5
Zoology 340-Genetics ..... 5
Chemistry 1, 2-Inorganic Chemistry ..... 8
Chemistry 27-Qualitative Analysis ..... 3
Chemistry 221-Quantitative Analysis ..... 3
Chemistry 210-Organic Chemistry ..... 5
Physics 1, 2-Elementary College Physics ..... 8
Mathematics 9, 10-Trigonometry and Algebra ..... 5
2. Preparation for Medicine
Zoology 1—General Zoology ..... 5
Zoology 4-Comparative Anatomy of Vertebrates ..... 5
Zoology 150-Human Heredity ..... 3
Zoology 222-Embryology and Histology of Vertebrates ..... 5
Zoology 310-Parasitology ..... 3
or
Zoology 320-Endocrinology ..... 3
Zoology 330-Cellular Physiology ..... 5
Chemistry 1, 2-Inorganic Chemistry ..... 8
Chemistry 27-Qualitative Analysis ..... 3
Chemistry 221-Quantitative Analysis ..... 3
Chemistry 210, 212-Organic Chemistry ..... 8
(In place of Chemistry 2,27 , and 221 , the student planning to enter
the School of Medicine with only 90 hours should take Chemistry 25.)8
Mathematics 9, 10-Trigonometry and Algebra ..... 5
Psychology 1-General Psychology ..... 3
3. Preparation for Medical Technology
Zoology 1—General Zoology ..... 5
Zoology 150-Human Heredity ..... 3
Zoology 310-Parasitology ..... 3
Zoology 320-Endocrinology ..... 3
Anatomy 201-Elements of Anatomy ..... 4
F'hysiology 201-Elements of Physiology ..... 5
Chemistry 1, 2-Inorganic Chemistry ..... 8
Chemistry 27-Qualitative Analysis ..... 3
Chemistry 221-Quantitative Analysis ..... 3
Chemistry 210, 212-Organic Chemistry ..... 8
(In place of Chemistry 2, 27, and 221, the student may be advised totake Chemistry 25.)
Botany 202-General Bacteriology ..... 3
Biochemistry 101-Elementary Physiological Chemistry ..... 4
Bacteriology 201-Medical Bacteriology ..... 6
Bacteriology 204-Immunity ..... 3
Physics 1, 2-Elementary College Physics ..... 8

## FIELD ZOOLOGY AND WILDLIFE CONSERV ATION

Many vocational opportunities depend upon a sound foundation in the field study of zoology and collateral subjects relating to wildlife and its modern management. At the University of Missouri is located one of the ten Cooperative Wildlife Research Units in the country. Established in 1937, it is supported jointly by the University, the U. S. Fish and Wildlife Service, the Wildlife Management Institute, the Missouri Conservation Commission, and other agencies whose objective is a program of research and training for professional wildlife work.

In the College of Arts and Science, the student may carry on his preparation for federal, state, private, or institutional employment in this field, dealing primarily either with terrestrial animals or with fish and other aquatic forms. The area of concentration is much the same for the two alternatives, but after the fifth semester the collateral courses differ somewhat, and the student is expected to make his choice before that time. Although wildlife management will always be a relatively small field compared with some others having to do with the products of land, there is nevertheless a steady and growing demand for well-trained technical workers.
The following area of concentration shows something of the spread of biological and other interests required:
Zoology 1-General Zoology ..... 5
Zoology 5-Ornithology ..... 3
Zoology 6-Principles of Wildlife Conservation ..... 3
Zoology 120-Invertebrate Zoology ..... 3
Zoology 305-Animal Ecology ..... 3
Zoology 309-Mammalogy ..... 3
Zoology 310-Parasitology ..... 3
Zoology 311-Ichthyology ..... 3
Botany 1-General Botany ..... 5
Botany 201—Taxonomy ..... 3
Botany 301-Plant Physiology or Physiology 201-Elements of Physiology ..... 5
Botany 306-Plant Ecology ..... 3
Botany 310-Aquatic Botany ..... 3
Geology 1—Principles of Geology ..... 5
Chemistry 1-General Inorganic Chemistry ..... 5
Up to 18 hours from the following list:
Agricultural Economics 325-Agricultural Statistics ..... 3
Field Crops 1-Field Crops ..... 3
Forestry 50-General Forestry ..... 3
Forestry 57-Dendrology ..... 2
Forestry 58-Dendrology ..... 2
Forestry 301-Silviculture ..... 3
Forestry 350-Farm Forestry ..... 3
Soils 1-Elementary Soils ..... 3
Soils 25-Soils ..... 5
Soils 102-Soil Survey and Land Appraisal ..... 3
Soils 204-Soils and Land Use in the United States ..... 3

A copy of the recommended curriculum for the four undergraduate years and the graduate program may be obtained from the Missouri Cooperative Wildlife Research Unit, University of Missouri.

## SPECIAL AREAS OF CONCENTRATION

Thiee areas of concentration following unusual lines are planned to meet the needs of individual students. Two of these, Latin America and The Missouri Valley, are geographical regions while the other is in American Civilization.

Students wanting a general cultural education and who plan to live in the Missouri Valley will find interesting possibilities in the study of the culture, problems, and future possibilities of the region. Students planning to live in Latin America or to work in business or governmental agencies dealing with Latin America should consider the Latin America area. Any student whose interests are in the history and culture of the United States should study the proposed area in American Civilization; somewhat similar
areas are available in the departments of English and History, and this area should be considered in the light of these alternatives.

The Missouri Valley<br>(Advised in the Department of Sociology)

Required (27 hours):
English 378-Literature of the West ............................................................... 3
Geography 319—Conservation of Natural Resources ................................. 3
History 360—The West to 1865 ..................................................................... 3
History 361—The Far West ........................................................................... 2
History 298-The Evolution of Society in the Missouri Valley .............. 2
Political Science 301-Local Rural Government ........................................ 3
Rural Sociology 420—Advanced Rural Sociology ........................................ 3
Sociology 305-Population Trends ....................................................................... 3
Sociology 326-Cultural Anthropology ........................................................ 3
Sociology 299—Problems of Society in the Missouri Valley .................... 2
History 298 and Sociology 299 will be given in successive semesters during the senior year.

Twenty-three to thirty-eight hours from the following:
Agricultural Economics 321-Economic History of Agriculture .......... 2
Agricultural Economics 360—Land Economics ........................................... 2
Art 20-The Art of America ....................................................................... 2
Botany 302-Economic Botany ....................................................................... 3
Economics 306-Economics of Transportation ............................................. 3
Economics 310—Labor Problems ................................................................... 5
Economics 360—Economic Control ............................................................... 3
Education B125-History of American Education .................................... 3
English 375-376—American Literature ....................................................... 6
English 377-The American Novel ............................................................... 3
Geography 110—Geography of North America .......................................... 3
History 151—History of Missouri ................................................................. 2
History 351—Social Forces in American History ...................................... 3
History 352—Economic History of the U. S. .............................................. 3
Forestry 351—Forest Conservation ............................................................... 3
Philosophy 212—American Ideals ................................................................. 3
Philosophy 310—American Philosophy ....................................................... 2
Political Science 302-Administration of Justice ...................................... 2
Political Science 305-Political Parties ..................................................... 3
Political Science 311—Administrative Regulation of Business and
Political Science 306-Municipal Government and Administration ...... 4
Religion 154-History of Religion in America ............................................ 2
Rural Sociology 320—Rural Population Problems .................................... 2
Rural Sociology 340—Community Organization ......................................... 3
Rural Sociology 440—Farmer Movements .................................................. 2
Sociology 60-General Anthropology ........................................................... 3
Sociology 315-Collective Behavior ............................................................... 3
Sociology 316—Urban Sociology ................................................................... 2
Sociology 327-Immigration and American Society ..................................... 2
Sociology 335-The American Indian ............................................................... 2
Sociology 339-The American Negro ..... 2
Sociology 341-American Archaeology ..... 3
Soils 204-Soils and Land Use in the United States ..... 3
Speech 311-American Phonetics ..... 3
Zoology 6-Principles of Wildlife Conservation ..... 3
Zoology 210—Field Zoology ..... 3
Zoology 305-Animal Ecology ..... 3
American Civilization
(Advised in the Departments of English and History)
A. Required Courses
English 375-376-American Literature ..... 6
History 20-American History ..... 5
Political Science 1-American Government ..... 5
Art 20-Art of America ..... 2
One course from the following:
Philosophy 212-American Ideals ..... 3
Philosophy 310-American Philosophy ..... 2
Religion 154-History of Religion in America ..... 2
B. Required Groups
The student must take either (1) or (2).
(1) English. All the following: 377-The American Novel ..... 3
378-The Literature of the West ..... 3
390-Modern Poetry ..... 3
393-Recent Fiction ..... 3
(2) History. At least 13 and no more than 20 hours from the following: 151-History of Missouri ..... 3
171-American Constitutional History ..... 3
251-Recent U. S. History ..... 3
351-Social Forces in American History ..... 3
352-Economic History of the U. S. ..... 3
360-The West to 1865 ..... 3
361-The Far West ..... 2
362-History of the South ..... 5
363-American Colonial History ..... 3
371-American Diplomatic History ..... 3
C. Elective Courses (to make a total with A. and B. above of at least 50 hours, of which no more than 25 may be in any one department) Education B125-History of American Education ..... 3
Geography 110-Geography of North America ..... 3
History-All the courses listed above, (2) under B.English-All the courses listed above, (1) under B.Journalism 100-101-History and Principles of Journalism6
Music 323-Modern Music ..... 2
Philosophy 310-American Philosophy ..... 2
Philosophy 311—Recent American Philosophy ..... 2
Philosophy 212-American Ideals ..... 3
Political Science 301-Local Rural Government ..... 3
Political Science 302-Administration of Justice ..... 2
Political Science 305-Political Parties ..... 3
Political Science 320-The American Constitution ..... 3
Religion 154-History of Religion in America ..... 2
Sociology 327-Immigration and American Society ..... 2
Sociology 335-The American Indian ..... 2
Sociology 316-Urban Sociology ..... 2
Sociology 339-The American Negro ..... 2
Speech 10-British and American Oratory ..... 2
Latin America
(Advised in the Department of Spanish)
Required Courses:
Spanish 2-Intermediate ..... 5
(Spanish 1 is required but no credit is given on area of con-centration)
Spanish 103-Reading ..... 3
Spanish 106-Composition ..... 2
Spanish 205-Composition \& Conversation ..... 3
Geography 360-Geography of South America ..... 3
History 112-National Latin America ..... 3
Political Science 304-Inter-American Relations ..... 3
Suggested Courses:
Portuguese 1-Elementary ..... 5
Portuguese 2-Intermediate ..... 5
Portuguese 103-Reading ..... 3
Portuguese 106-Compasition ..... 2
Spanish 107-Advanced Reading ..... 2
Spanish 211-Advanced Composition and Conversation ..... 2
Spanish 212-Advanced Idiom and Oral Studies ..... 5
Spanish 222-Commercial Correspondence ..... 2
Spanish 310-Spanish American Literature ..... 3
Spanish 311-Continuation of 310 ..... 3
Spanish 325-Mexican Literature ..... 3
Spanish 351-Phonetics ..... 2
History 110-Colonial Latin America ..... 3
History 365-Mexican History ..... 3
History 367-History of Argentina, Brazil, and Chile ..... 3
History 371—American Diplomatic History ..... 3
Geography 364-Middle America ..... 2
Political Science 353-Latin American Governments ..... 5
Philosophy 240-Latin American Philosophy ..... 2
Sociology 335-American Indian ..... 2

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